Case 260 - Tide Water to dually complete State S #4, NENW 15-21S-37E for Ellenburger and McKee

# Case No.

260

Application, Transcript, Small Exhibits, Etc.

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held March 20, 1951, beginning at 10:00 o'clock a. m. on that day in the City of Santa Fe, New Mexico, in the Council Chamber of the City Hall.

STATE OF NEW MEXICO TO:

All named parties in the following cases and notice to the public:

Case 260

In the matter of the application of Tide Water Associated Oil Company for authority to dually complete State S No. 4, located in the NE/4 NW/4 section 15, T. 21 S, R. 37 E, Lea County, New Mexico, for the Ellenburger and McKee formations; or in the alternative to authorize transfer of allowable of State S No. 4 to State S No. 3 for Ellenburger production.

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Case 262

In the matter of the application of Byrd-Frost, Inc. for designation and spacing rules for a Mesa Verde gas pool to be known as Largo Mesa Verde gas pool, comprising:

T. 29 N, R. 8 W
Sections 1 to 36, inclusive

T. 28 N, R. 8 W
Sections 7 to 18, 20 to 28, and 34 to 36

T. 27 N, R. 8 W
Sections 1 to 4, and 9 to 12

T. 29 N, R. 7 W
Sections 17 to 20 and 28 to 34

T. 28 N, R. 7 W
Sections 7 to 10, 15 to 22, and 26 to 35

Case 263

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Extend the House pool:
T. 20 S, R. 38 E
S/2 section 11
NE/4 and S/2 section 12
N/2 section 13
N/2 section 14
T. 20 S, R. 39 E
W/2 section 7
NW/4 section 18

continued -

Extend the Bough pool:
T. 9 S, R. 36 E
S/2 section 7
All section 18

Extend the Vacuum pool:
T. 18 S, R. 34 E
All section 5

Extend the Bagley Siluro-Devonian pool:
T. 11 S, R. 33 E
SE/4 section 33
SW/4 section 34

T. 12 S, R. 33 E
W/2 section 3
E/2 section 4

Create the following pools:

Twin Lakes pool
T. 8 S, R. 28 E
SE/4 section 35
S/2 section 36

T. 9 S, R. 28 E
All section 1
E/2 section 2

Fowler-Blinebry pool
T. 24 S, R. 37 E
W/2 section 15
All section 16
N/2 section 21
NW/4 section 22

Gladiola-Abo pool
T. 12 S, R. 37 E
All section 13
E/2 section 14
NE/4 section 23
N/2 section 24

Levick pool
T. 8 S, R. 27 E
SW/4 section 5
S/2 section 6
All section 7
W/2 section 8

Keohane pool
T. 9 S, R. 29 E
SE/4 section 1
E/2 section 12
T. 9 S, R. 30 E
S/2 section 6
All section 7

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on February 21, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL

R. R. SPURRIER
Secretary

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T. 29 N. R. 7 W
Sections 17 to 20, and 28 to 34
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Sections 7 to 10, 15 to 22, and 26 to 35

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Levick pool
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STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
(SEAL)
R. R. SPURRIER,
Secretary.

Pub.: Feb. 27, 1951.

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ax $

. $ 12.00

# Affidavit of Publication

State of New Mexico
County of Santa Fe } ss.

I, Will Harrison, being first duly sworn, declare and say that I am the ~~Business Manager~~ (Editor) of the Santa Fe New Mexican, a daily newspaper, published in the English Language, and having a general circulation in the City and County of Santa Fe, State of New Mexico, and being a newspaper duly qualified to publish legal notices and advertisements under the provisions of Chapter 167 of the Session Laws of 1937; that the publication, a copy which is hereto attached, was published in said paper once ~~each week~~ for 1 time ~~consecutive weeks, and on the same day of each week~~ in the regular issue of the paper during the time of publication, and that the notice was published in the newspaper proper, and not in any supplement, once ~~each week~~ for 1 time ~~weeks consecutively~~, the first publication being on the 27th day of February, 19 51, and the last publication ~~on the ____ day of ____~~, ~~19__~~; that payment for said advertisement has been (duly made), or (assessed as court costs); that the undersigned has personal knowledge of the matters and things set forth in this affidavit.

Will Harrison
Editor-~~Manager~~

Subscribed and sworn to before me this 27th day of February, A.D., 1951

Anna K. Ormsbee
Notary Public

My Commission expires
June 14, 1953

Y.L.

AFFIDAVIT OF PUBLICATION

County of Chaves
State of New Mexico, }

I, Lynn W. Croissant
Bookkeeper

Of the Roswell Daily Record, a daily newspaper published at Roswell, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not in a supplement thereof for a period of

One weeks

beginning with the issue dated

26 February, 1951

and ending with the issue dated

26 February, 1951

Lynn W. Croissant
Bookkeeper

Sworn and subscribed to before me this 26 day of February, 1951

Annie Lee Wisi
Notary Public.

My commission expires Feb. 9, 1952

(Seal)

Run 26 Feb.

NOTICE OF PUBLICATION
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All names [redacted] following cases and [redacted] to [redacted]ublic.

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GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on February 21, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

(SEAL) R. R. Spurrier, Secretary.

February 22, 1951

Hobbs Daily News Sun
Hobbs, New Mexico

RE: Notices of Publication
Cases 260, 261, and 262

Gentlemen:

Please publish the enclosed notices one time immediately on receipt of this request. Please proofread the notices carefully and send a copy of the paper carrying such notices to this office.

Upon completion of the publication, send publisher's affidavit in duplicate.

For payment, please submit statement in duplicate, and sign and return the enclosed voucher.

PLEASE PUBLISH NOT LATER THAN MARCH 1, 1951.

Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary - Director

RRS:nr
Encl.

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GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on February 21, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

SEAL

R. R. SPURRIER
Secretary

February 23, 1951

Editor,
Santa Fe New Mexican
SANTA FE, NEW MEXICO

Dear Sir:

RE: Notices of Publication
Cases 260, 261, 262 and 263

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Very truly yours,

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

R. R. Spurrier
Secretary - Director

RRS:nr
Encl.

File

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# Oi

WASHINGTON, Mar. (AP)—A four-point progra increasing oil and gas with a minimum use of s tubular goods has been drafte by Secretary of the Interior Chapman.

**THE PURPOSE** of the program is to save on steel used in the drilling equipment.

The key proposal, Chapman said, was a recommendation that new oil wells in crowded fields be drilled farther apart.

He urged state regulatory bodies like the Texas Railroad Commission to re-examine their rules for spacing of wells "with a view toward revision to permit drilling of new wells farther apart, where practical, and producing more from each well."

**THE STATE BODIES** also will have to adjust the allowable production quotas from individual wells to assure operators of fair treatment, Bruce K. Brown, deputy administrator of the Petroleum Administration for Defense (PAD) said.

The other three points of Chapman's program are:

- Increased use of pressure maintenance and re-pressuring operations in oil and gas reservoirs, through operation of reservoirs as single units. He said this would help maintain maximum efficient rates of production and thus would increase ultimate recovery.
- Careful examination of field rules and existing drilling practices, to reduce requirements for surface and other casing by shortening or eliminating sections of large-diameter pipe and substituting smaller, lighter pipe.
- Greater use of so-called dual completions—the tapping of two or more petroleum reservoirs with a single well bore.

The National Production (NPA) Monday issued order M-46, setting up a priority system for materials for the industry, and authorizing PAD to regulate the distribution of tubular goods.

**NPA HAS ORDERED** the production of 157,500 tons of oil-industry tubular goods during April.

Chapman said that if steel is allocated to mills at this level regularly, the production of tubular goods would average 1,890,000 tons annually.

ILLEGIBLE

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

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TRANSCRIPT OF HEARING

March 20, 1951

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Case No. 260

E. E. GREESON
COURT REPORTER
UNITED STATES COURT HOUSE
TELEPHONE 2-0672
ALBUQUERQUE, NEW MEXICO

BEFORE THE
OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

March 20, 1951

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

Case 260:

This case is an application by Tide Water Associated Oil Company of Houston, Texas, for an oil/oil dual completion of the Ellenburger and McKee formations for State S No. 4, located in the NE/4 NW/4 section 15, T.21 S, R. 37 E: Perforation 7800-7825' for the Ellenburger and 7422-7434' for the McKee; or in the alternative to transfer allowable of State S No. 4 to State S No. 3.

CHAIRMAN SHEPARD: The next case is 260.

(Mr. Graham reads the notice of publication.)

MR. ARMSTRONG: We might have these two witness sworn at the same time. Lloyd Armstrong is my name, representing Tidewater.

(Witnesses sworn.)

J. B. HOLLOWAY,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. ARMSTRONG:

Q Mr. Holloway, just be seated. State your name, please.

A J. B. Holloway.

Q You are employed by Tidewater Associated Oil Company?

A I am.

Q Do you have with you cross sections of the area involved in this hearing this morning?

A Yes, sir, I do.

Q Would you please introduce the cross section as our Exhibit?

MR. ARMSTRONG: How do you mark them up here?

CHAIRMAN SHEPARD: Exhibit A or 1.

THE WITNESS: I would like to give them two so that each of them can have one before them.

(Marked Exhibit A.)

Q Do you also have a map which shows this field which is involved in this hearing?

A Yes, sir, I do.

Q Would you please mark that as Exhibit B Mr. Reporter?

(Marked Exhibit B.)

Q Mr. Holloway do you desire to make an opening statement here?

A Yes, sir, I would.

Q Telling the Board what you are asking for. Will you proceed.

A I would like to say that at the time I petitioned for permission to dually complete the State S No. 4 well, which is located in the NE/4 NW/4 of section 15, it had not been definitely learned whether we would be able to assemble sufficient casin and tubing in proper sizes and weights to commence at an early date our State S No. 5 well. The State S No. 5 however is now drilling, and

with the exception of as to how our petition reads with reference to the dually completing of No. 4 it doesn't actually state our preference with reference to the 80 acre allowable. With No. 5 drilling, and we expect to encounter the formation as we have shown them on the cross section, we think it would be preferable that in the event the Commission is so disposed to grant dual oil - oil wells, that we be permitted to have an allocation of 80 acres for the No. 4 well so that the No. 5 well can be completed in the McKee Sand.

Q You wouldn't want the allocation to be made until when?

A Until after we have completed No. 5 and have shown the Commission both zones of productive and capable of making their allowable. Now we realize that possibly both of these cases have no precedence in the State of New Mexico, that they are not uncommon in some other areas. Because of certain conditions of circumstances - of course, the circumstance which prompted us to ask for this was the critical shortage of field pipe.

During 1950 we averaged using about 1000 tons or more of steel pipe per month. Last month I think I had receipts for just about half of that. And three months prior to that not much more that than. And on February 26, the last figures I was able to get, showed that we still had on allocation I believe 795 tons of steel

pipe that should have been received in the third quarter of 1950 that had not yet been delivered.

Q Do you have any assurance that pipe will be delivered?

A It hasn't been cancelled. It is still on the books of the mill and we haven't been informed it will not eventually be shipped to us. But we are getting farther behind all the time. During the last quarter of 1950 the total tonnage of undelivered pipe was 896 ton that should have been received prior to the first of January. It takes 120 tons or about that approximate amount to drill one of these 8000 foot wells. That is about a fifth or sixth of the amount of pipe we are no receiving for our entire Mid Continent operation. And I think it is realized by everyone that we need these two things. One, conserve steel during the period of this emergency; and the other, is to bring in more producable reserves.

In fact, we wrote up this application along about the middle of January, and on March 14, just a week ago I clipped a news item from the papers that most of us has seen that stated that the Secretary of the Interior, Chapman had a four point program for increasing oil and gas yields with a minimum use of steel tubular goods. And he requested the operators, and I believe the state regulatory authorities, to consider four points toward that end. And we, of course, would like you to know that two of

them are just precisely what we have asked for here.

One was to grant wells on larger units with compensatory allowables to keep the operators from being injured, or a careful examination for the possibility of dual completions in every instance where possible.

Now, the four points Mr. Chapman came out with, two of them are in this hearing. I would be glad to leave that with you in case any of you haven't seen it. It got quite general publicity. That is about all I believe I have, Mr. Armstrong.

Q Mr. Holloway, you stated in the beginning I believe since this well No. 5 had been started that our preference is at this time, at the present time, to be given an 80-acre allowable and one well drilled on 80 acres, which would eliminate the necessity for drilling an additional well; and in the alternative we be granted the dual completion, is that correct?

A Yes, that is correct.

Q That is a little bit contrary to your previous position?

A Yes. On previous position we requested probably a little bit prematurely. It would have been better had we had no No. 5 drilling. We could have seen the picture more clearly ourselves. But it isn't altered too greatly and we would prefer the 80 acre allowable over a dual completion. We think both of them are reasonable and practical and the reason why we prefer that is that we know eventually these dual completed wells will not flow in both

zones, and we will be faced eventually with the necessity of plugging up one of these zones. That would probably cost us twenty thousand dollars or more to dually complete and plug up. We also realize if an 80-acre allowable is granted, it will be revoked when the emergency period is over. In either event, we are looking forward to some other means of obtaining production from individual wells on this lease.

It would be probably cheaper for us to have the 80-acre allowable, and eliminate the necessity for those two jobs. I mentioned the 120 tons of steel necessary to drill these wells. There are two in our application and Cities Service has one in the hearing following us, very similar to us. And there are four of them.

Our lease extended the Brunson field and they are productive. If our operation is favorable and the operators will go along with us, we are not probably talking about the 120 tons but maybe ten times that and maybe about ten thousand barrels of production that will be cased off by a single well until the operators obtain pipe to drill these wells.

I don't believe now is the time to do it. 1200 tons will build a lot of tanks.

MR. ARMSTRONG: No further questions.

MR. SHACKLEFORD,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. ARMSTRONG:

Q Mr. Shackleford, will you give your initials to the reporter, please.

A VOICE: Can we interrogate Mr. Holloway.

CHAIRMAN SHEPARD: You may go ahead and question him now if you like.

A VOICE: We would like to hear Mr. Shackleford first.

CHAIRMAN SHEPARD: All right.

Q Mr. Shackleford, are you employed by Tidewater Associated Oil Company?

A Yes, sir.

Q In what division?

A District Production Foreman.

Q Where are you located?

A Hobbs, New Mexico.

Q How large is that district you referred to?

A Well, it extends over quite an area from east of Jal, New Mexico up to around Levelland, Texas.

Q Includes all of New Mexico?

A Yes, sir.

Q How long have you been employed by Tidewater?

A Ten years, a little over.

Q Will you outline briefly your formal education?

A Well, I was graduated from the University of Oklahoma in 1940 with a Bachelor of Science Degree in Petroleum Engineering.

Q Petroleum Engineering. Have you followed that profession since your graudation from school?

A Yes, sir.

Q Where were you first employed by Tidewater?

A Kilgore, Texas.

Q When was that?

A June 5, 1940.

Q What other experience have you had with Tidewater ?

A Well, I spent about 7 or 8 years - two years in and around Kilgore - and about a year at Cayuaga in Arkansas, and almost 8 years in the New Hope field located in the southern end by Franklin County, Texas.

Q During all that period you have followed your profession of field engineering?

A Yes, sir.

Q Working with wells in the field?

A Yes, sir.

Q Mr. Shackleford, do you have some drill stem tests, the results of drill stem tests, made on our well No. 4?

A Yes, sir.

Q Will you introduce one copy of that as our Exhibit No. C? Will you tell the Commission what that sheet you have just

introduced as an Exhibit reflects?

A Well, it reflects the ability of the McKee Sand and the State S well No. 4 to produce.

Q What does it show?

A It shows this sand produced at the rate of 50 barrels, 45 gravity oil per hour.

Q How long was the test, what period of time?

A For the duration of an hour.

Q One hour. And then well No. 4 is completed in what zone of sand?

A Ellenburger.

Q Do you have a productivity index taken on the well No. 4 as to the Ellenburger?

A Yes, sir.

Q By whom was that prepared?

A By the Subsurface Engineering Company.

Q That is an independent engineering company?

A Yes, sir.

Q Located where?

A I believe with headquarters in Tulsa, but I think out of Midland in this state.

Q They operate all over the southwest?

A Yes, sir.

Q Do you have an extra copy of that?

A Yes, sir.

Q Please introduce it as Exhibit No. D. Will you outline just briefly to the Commission the results shown by those tests as indicated in that report.

A Well, we produced this well at three different rates of flow. We found that the well at the higher rate, which was 195 barrels per day, we got the highest productivity index. And we got the lowest at the lowest rate of flow.

Q Will you tell us what the productivity index is in language I can understand.

A Well, the productivity index is barrels of oil produced per day per pound loss in bottom hole pressure.

Q What were these varying rates of production you mentioned?

A One at the rate of 195 barrels per day, and one at the rate of 137, and one at the rate of 81 barrels.

Q What were the respective drops in pressure at those rates?

A At the larger rate it was -

Q (Interrupting) Now these figures you are about to give me are contained in this report we introduced?

A Yes, sir. 87 pounds at the high rate, 69 pounds at the next rate, and 47 pounds at the lower rate.

Q Now as an engineer, Mr. Shackleford, what does that indicate to you?

A Well, it indicates that per barrel of oil produced that the drop was greater at the higher rate.

Q You mean it seems to be more efficient at that rate than it does at a lower rate?

A Well, by getting the well's drop per barrel, I would say it produced better at the high rate.

Q Based upon your study of the reservoir and the information about which you have testified, do you have any opinion as to whether or not the well in this field could produce daily an 80-acre allowable without any injury to the reservoir?

A I would say that it could.

Q Mr. Shackleford, have you had any experience in the dual completion of wells?

A Yes, sir.

Q Where did you have your first experience in that?

A Well, in the New Hope field.

Q That is Franklin County, Texas?

A Yes, sir.

Q How many wells have you supervised the dual completion of while employed by Tidewater in that field?

A About 32.

Q Will you compare the depths of the producing sands in the New Hope field with the depths of the producing sands in this field?

A Well, yes. We had three pays there. At 7300 -

Q (Interrupting) You are referring to the New Hope field?

A New Hope. 7450 and 7900.

Q What are the depths of the sands in this field?

A Possibly 7450 and 7800.

Q Those are approximately the same depth then, is that true?

A Yes, sir.

Q State whether or not the differentials in pressure in the sands encountered - what were the differentials in pressure in the sands encountered in the New Hope field?

A At the beginning it was approximately 100 pound differential.

Q At the highest and the lowest of the three sands?

A Yes, sir.

Q What was the differential and pressure encountered in the Brunson field?

A From the information we have here based upon P. R. tests, and the drill stem test, it is 24 pounds difference.

Q 24 pounds difference. Is there on the market today and available for purchase the necessary physical equipment to dually complete wells?

A Yes, sir.

Q You have dually completed some 32 you said?

A Yes, sir.

Q Do you see any material difference in the field involved in this hearing, the characteristics of the field involved in this

hearing, as compared with the characteristics - do you see any difference in the sands involved in this hearing, the characterstics of the sands involved in this hearing, as compared with the characteristics of those encountered in the New Hope field?

A No, I don't see any great difference in the two.

Q Do you have any opinion as to whether or not you could dually complete wells in the Brunson field if given the opportunity?

A I can do it, yes, sir.

Q You think you can do it?

A Yes, sir.

Q In your experience with dual completions, do you have any opinion as to whether or not the dual completions you have made - can be made without resulting in any underground waste?

A Yes, sir, they can.

Q Do you have any opinion as to whether or not that can be done in this field?

A I would say that it could be done.

Q Have you ever had any failures with dual completions?

A Yes, sir.

Q Would you say that your failures resulted in any underground waste?

A No, sir.

Q What did they result in?

A A little expenditure by the company to repair them, in money

Q A little expenditure in money. You are willing to take that

chance on Tidewater having to spend some more money to correct these dual completions if anything goes wrong?

A Yes, sir.

MR. ARMSTRONG: That is all.

CHAIRMAN SHEPARD: Would you care at this time to cross examine?

A VOICE: No, that is all right. I will wait. Are you through?

MR. ARMSTRONG: Just a minute.

(Off the record.)

MR. ARMSTRONG: Mr. Shackleford, have you had any other experience in dually completing wells other than the New Hope field in Franklin County, Texas?

A Yes, sir.

Q Where was that experience?

A Well, it was in Arkansas.

Q For Tidewater?

A Yes, sir. The Macedonia field I believe it is. West of Magnolia.

Q How many wells did you dually complete in that field?

A 2.

Q Are those wells still being operated as dually completed wells?

A Well, I wouldn't say, but I know they were completed - they were for four or five years, I don't know the present status.

Q You haven't kept up with them. They were successful at the time and after they were dually completed?

A Yes, sir.

Q MR. ARMSTRONG: That is all.

CHAIRMAN SHEPARD: Do you have any other witnesses?

MR. ARMSTRONG: No, that is all.

QUESTIONS BY MR. HOUSTON: My name is R. L. Houston and I represent Shell Oil Company at Houston.

Q Are we to understand you are withdrawing your application to transfer allowable from well No. 4 to well No. 3?

A You are correct.

Q And so your application today is merely to dually complete -

A It is either to dually complete No. 4 (answers by Mr. Holloway), or if the Commission would rather, to give us an allocation of 80-acres, hold that in abeyance until we have completed No. 5. It is five or six thousand feet now.

Q You are premature in that, aren't you?

A How is that?

Q Well No. 5 isn't completed.

A We have completed No. 4 and I ask it to be held in abeyance until we complete it to the satisfaction of the Commission.

Q But you ask them to grant it in advance?

A I asked it be held in abeyance. I would like to have something to show that it would be granted. Just to make these tests and

be put to the expense -

Q (Interrupting) We are hearing the application as made to transfer the allowables from well 4 to well 3, which has been withdrawn, and the application to dually complete in the alternative

A We would be very happy with either one, with the dual completion permit or application for 80-acres, are subject to keeping the docket opened, and the duration of the emergency, that we can come back -

Q (Interrupting) The matter of the transfer of the allowable should be taken up in a proper application and there is none before the Commission and I would like the Commission to rule at this time so that we will know where we are spending our time.

MR. ARMSTRONG: If it please the Commission, naturally we contemplate the necessity of coming back before this Commission with the request after well No. 5 has been completed, and if well No. 5 after completion is proven to be productive in both zones, we naturally expect to have to come back here for another hearing to get the transfer of allowable mentioned here and the 80-acre allowable given us. What we are hear today for is to attempt to find out the attitude of the Commission with respect to the 80-acre allowable.

We realize we are not entitled and cannot be entitled to any 80-acre allowable assigned to well No.4 until after we prove to your satisfaction that well No. 5 is capable of

producing in both zones. So we are asking the Commission here today to hold any order they might make in abeyance pending the additional hearing we contemplate as to well No. 5. But frankly, we were hopeful we could get some indication here today as to what way this Commission is thinking so that we will know how to proceed when well No. 5 is completed.

MR. HOLLOWAY: Mr. Armstrong, may I amplify your statement?

(Off the record by the Commission.)

MR. HOLLOWAY: The further statement I want to make and add to Mr. Armstrong's statement is that we are not asking in anyway to set a precedent for 80-acre spacing. We feel that ourselves and other operators should have drilled first a well in every 40-acre unit, and to have shown that each of those 40 acre units is productive before an 80-acre allocation is made to any well. We ask that because it can be seen from the map the field is rather narrow, possibly not more than four locations wide, and if an 80-acre allowable is assigned without proving both 40's productive, someone will get some dry acreage they are not entitled to.

MR. HOUSTON: I understand that, but the question you have is abstract at this time. You don't have the well No. 5 completed and the application you made to transfer the allowable has been withdrawn, so there is no question of transfer of allowable before the Commission.

MR. HOLLOWAY: Not as to No. 3.

MR. ARMSTRONG: There is before the Commission the request for dual completion as to well No. 4. And we have advised the Commission if they are no in favor of dual completion, then we are requesting that in the alternative they express to us their opinion, if possible, as to whether or not we would be entitled on the proper showing to an 80-acre allowable. So the Commission does have -

MR. HOUSTON: (Interrupting) Is that your application in the notice sent out?

MR. ARMSTRONG: The dual completion is.

MR. HOUSTON: I understand the dual completion is.

MR. ARMSTRONG: We will be very happy with the dual completion.

MR. HOLLOWAY: It will be necessary to have another hearing because if we complete in the McKee which is in the Simpson, it will be probably extended to the Hare field which is a mile or so north. And I believe it is customary to set out boundaries for the field. Upon the completion of this well in the McKee, it won't be in any designated field, but it appears now it will be in the Hare field, which is quite an extension.

COMMISSIONER: SPURRIER: The Commission feels since we do have 80-acre allocations in one instance in one pool: that is, we have many pools producing under an 80-acre allowable from one well; and since we don't have any oil-oil dual

completion in the state - speaking for Commissioner Shepard and myself, we lean toward the 80-acre allocation.

We also feel as you have already said that we should hold this open, that Tidewater should re-apply for exactly what they do want when they have completed well No. 5.

Does that answer your question?

MR. HOUSTON: Yes, sir, I think so. The question of 80-acre allocation is not before us at this time.

MR. SPURRIER: No, it isn't.

MR. HOUSTON: And the only question is dual completions.

MR. STORM: I would like to ask Mr. Shackleford some questions.

MR. HOUSTON: Mr. Storm is our engineer and he would like to ask some questions with reference to dual completions

CHAIRMAN SHEPARD: He may proceed. Will you state your name for the record and come around here so that you may be heard more easily.

MR. STORM: My name is L. O. Storm, Division Engineer, Shell Oil Company, of New Mexico.

Q Mr. Shackleford, you stated that you have associated with dual completions in the New Hope field in Franklin County, Texas?

A Yes, sir.

Q The questions in my mind relate to the type of reservoirs you were dealing with. By that I mean were they all

oil-oil dual completions or were they oil-gas or gas-gas?

A Oil-oil.

Q Oil-oil. Now were they reservoirs with water drive?

A No, they were not.

Q Then I take it they probably performed under some type of expansion drive?

A Yes, sir.

Q Have you investigated the type of reservoirs that we are apparently dealing with in the Brunson and Hare fields?

A Not to a great extent, no.

MR. STORM: I would like to point out to the Commission that Brunson-Ellenburger production - there is definite evidence we do not have a strong drive. We may have a partial water drive in my opinion. I would like to know if Mr. Schakleford concurs with me on that.

A I haven't really studied that.

Q There has been an influx of water down on the flank of the Brunson reservoir to indicate either fluid expansion of the water into the reservoir or partial water drive. In the case of the Hare pool I think we are dealing with an outright gas expansion reservoir. I take that from the decline of pressure in the reservoir. The recovery per pound drop in pressure is approximately 37 to 75 pounds, in that range. Now, it occurs to me that it also in the Brunson field within the now

designated limits of the field -

MR. ARMSTRONG: Pardon the interruption. If it please the Commission, I don't know whether this witness is testifying now or not. I assume he is. I would like to make him subject to cross examination. I understood he was just questioning the witness. If he is testifying, I would like the privilege of cross examining him.

CHAIRMAN SHEPARD: You may cross examine later.

MR. STORM: I was trying to lay some background to the point that I believe in the Brunson and Hare we ultimately will be faced with artificial lift.

MR. SCHACKLEFORD: Well, aren't all fields faced with that -

MR. STORM: I suspected you may have had the same condition at New Hope.

MR. SCHACKLEFORD: Yes, but we did something about it.

MR. STORM: Was it a matter of dually lifting the wells or excluding one zone to complete the other?

A We instigated pressure.

Q My point in asking Mr. Schackleford these questions and making these statements was to suggest that ultimately several production problems will arise and in that respect I do not feel that the Brunson and Hare fields necessarily can be directly compared with the Tidewater dual completion operation in the New Hope field.

A I was only stating that they can be dually completed, and

having no reference to the economics. If the company completes them and gets two or three years flow, anything we do to those wells would be on us without injuring the reservoir, will be no expense to anybody else.

Q I understand that. I will withhold any comment for the time being. That is all for right now.

MR. ARMSTRONG: I have no questions. I would like to ask Mr. Shackleford one other question.

CHAIRMAN SHEPARD: Of course, go right ahead.

Q Mr. Shackleford, the witness just said he was afraid that down the line somewhere we would have very serious production problems. I will ask you what has been your experience - if it has been your experience - that we have had that in every field we have ever operated in.

A I would believe that to be true in any oil field.

Q Have we had serious production problems in New Hope?

A Yes, sir.

Q In Arkansas?

A Yes, sir.

Q And all other fields you know about?

A That I have had any experience about, we have had production problems down the line.

Q I believe you stated in the New Hope field our principle source of energy was expansion, is that right?

A That is right.

Q Now, that is no different than what we find here or expect to find in this field?

A That is right, if they are that type of reservoir.

Q And the dual completions did work satisfactorily in New Hope?

A Yes, sir.

Q After hearing this witness testify that was questioning you a moment ago, have you changed your opinion as to whether you could reasonably expect to successfully dual complete the wells in this field?

A No, sir.

MR. ARMSTRONG: That is all.

CHAIRMAN SHEPARD: Any further questions? Does anyone have any statement to make?

MR. HOUSTON: The whole matter will come up again in a month from now?

CHAIRMAN SHEPARD: That will be held open and Tidewater permitted to make a new application and we will hold a re-hearing, but all this will be considered in the new hearing.

MR. HOUSTON: We can question the witnesses further at that time?

CHAIRMAN SHEPARD: Yes, sir.

MR. ARMSTRONG: I am not certain we will have this witness back at that time. It depends on whether or not we ask in the alternative at the next hearing, whether we be allowed dual completion. If we ask for the 80-acre allowable only I don't know that we will have this witness here.

MR. HOUSTON: We won't need him here.

CHAIRMAN SHEPARD: You won't need him.

MR. ARMSTRONG: If they want to question him, I think now is the time to do it.

CHAIRMAN SHEPARD: If you don't have an application for dual completion, it won't be necessary.

MR. DEWEY: My name is R. S. Dewey for the Humble Oil Company. Mr. Chairman, may I ask a question. Is the matter of dual completions to be held over until the next hearing?

CHAIRMAN SHEPARD: Yes, sir, it is all held open.

MR. DEWEY: Did I understand you may withdraw that?

MR. ARMSTRONG: I don't know at the present time what procedure we will elect to pursue. The odds are we will ask an 80-acre allowable following the alternative for a dual completion.

MR. GRAHAM: You will file a new application?

MR. ARMSTRONG: Yes, sir.

MR. DEWEY: In either event we will have an opportunity to appear again?

CHAIRMAN SHEPARD: Yes, you will. It will be advertised and each one of you will receive a statement of it.

MR. DEWEY: I will make my statement rather brief under the circumstances. The Humble Oil and Refining Company, as a policy matter, has adopted this policy which I would like to read into the record.

STATEMENT OF HUMBLE OIL AND REFINING COMPANY IN REGARD TO MULTIPLE-ZONE COMPIETIONS:

The Humble Oil and Refining Company believes that the purpose of conservation and prevention of waste cannot be served fully and consistently under a general practice of multiple-zone completions. Present knowledge of reservoir performance and control reveals that the migration of oil, water, or gas from one reservoir to another can result in irrecoverable loss of oil in a reservoir. The migration of fluid resulting in such waste can take place through only one or a few faulty multiple zone completions out of possibly several hundred completions. More specifically, the main objections to multiple-zone completions are:

1. Difficulty of determining communication between zones,

2. Reservoir waste resulting from inadequate seal between zones,

3. Shifting of equities within the reservoirs as a result of the migration of fluids from one reservoir to another,

4. In certain areas and pools, underground waste and greater hazards of blowouts as a result of corrosive effect of the produced fluids,
5. More difficult and more hazardous workover operations which can result in early abandoment of commercially productive zones,
6. Workover operations may be postponed with the result that less efficient reservoir operations are maintained, and
7. Information made available for reservoir study and control is less satisfactory.

However, the Company realizes that there may be certain fields and reservoirs in which it is necessary to employ multiple-zone completion operations, particularly as a matter of depleting zones or segments of reservoirs that would not otherwise justify individual wells or exploitation subsequent to the major operation.

I would like to request that the Commission incorporate in this hearing testimony that was - concerning multiple zone completions - taken approximately two and a half years ago. The testimony which I gave at that time. I feel there is no reason to change, and I feel that subsequent events after that testimony have strengthened the testimony that was given at that time.

CHAIRMAN SHEPARD: It will be included.

(Testimony referred to by Mr. Dewey will appear at end of the transcript of this case.)

MR. ARMSTRONG: May I ask you a question before you leave, sir?

MR. DEWEY: Yes, sir.

MR. ARMSTRONG: As Humble dually completed any wells since you gave that last testimony?

MR. DEWEY: Yes, sir.

MR. ARMSTRONG: How many?

MR. DEWEY: Seven.

MR. ARMSTRONG: That is all, thank you.

MR. DEWEY: That is not all for me. (Laughter)

CHAIRMAN SHEPARD: You just want to make a statement Bob or give some testimony.

MR. DEWEY: I want to tell him why we made them.

CHAIRMAN SHEPARD: Better swear him.

(Mr. Dewey sworn.)

MR. DEWEY: The Humble is one of several operators in the Dollar-Hayde field in Texas. The Dollar-Hayde field is located very close to the border of New Mexico. It is possible that some parts of the Dollar-Hayde field may in the future extend into New Mexico. The Dollar-Hayde field has a number of separate reservoirs. At least they were separate prior to drilling. The upper reservoir is the Clearfork which is under development currently.

Somewhat lower in the section they encountered two different pays in the Devonian and somewhat lower in the section the Siourian is productive, and the lowest of the productive horizons is the Ellenburger. These various reservoirs are not too extensive to the extent that each operator participates in each of them - just strike that please. These horizons are not common to the same extent to all operators in the field. That is, one operator may have unproduced maybe two or three of them, but maybe not in the fourth. The practice was inaugurated of making dual completions between the horizons in the field. The Humble was degraded in their operations by the practice established by other operators in making duals to the extent they deepened four wells from the Devonian to the Siourian formation, and made dual completions out of them. They also drilled three separate wells which were Devonian - Siourian completions.

Without giving you too much detail about it, we had a great deal of trouble up there with it. Cawden No. 3 was abandoned in the Siourian formation on April 3, 1949. It is still productive in the Devonian formation. Cawden No. 5 was abandoned in the Siourian in November or in October 1950 and it is still productive in the Devonian.

Before abandoning Cawden No. 5 approximately 50

thousand dollars was spent trying to repair the well to maintain production in the Siourian. Those two wells illustrate the difficulty in my estimation of repairing wells and maintaining production and getting the greatest recovery possible from both zones of a dual completion. We have another well in trouble up there. In Cawden No. 4 we attempted - after water, Siourian water, was discovered in the Devonian formation - we attempted to gas lift the Siourian and Devonian formation. We have not been able to gas lift sufficiently to bring back the 100 per cent Siourian production that we - Siourian water production - which we are getting out of the Devonian formation.

That well we anticipate will require a great deal of expenditure of money to rejuvenate it. We may leave it. There are three wells out of seven since that last hearing that we have had difficulty with.

I think that is a rather common experience in west Texas fields. Any questions you want to ask me about it.

MR. ARMSTRONG: Yes. I will have several at the proper time. I have a couple now. These seven wells you have just dually completed since the date of the last hearing, I believe you made application to the Texas Railroad Commission and had a hearing on each of those dual completions.

MR. DEWEY: I am not sure about that. It was the established custom of the field.

Q If the law of Texas required that you did it?

A We did it if the law of Texas required it certainly.

Q As far as you know it wasn't during any of that time any order of the Railroad Commission of Texas that required you to complete any well?

MR. DEWEY: No, sir, that is the pitiful thing about the whole business. One bad apple can spoil the whole barrel, and get one poor operation in the field and the other operators go on down the line and degrade it to that extent.

Q Follow the leader?

MR. DEWEY: Yes, sir, it is the pitiful thing.

Q All during those times you would have drilled another well to that other formation without dually completing it?

A That is right.

Q If this Commission would grant Tidewater permission to dually complete this well there wouldn't be any requirement to dually complete it if you don't want to?

A No, sir, and I hope we have the intestinal fortitude not to do it.

MR. ARMSTRONG: That is all.

CHAIRMAN SHEPARD: Any further questions. If not

you will be excused Mr. Dewey. If there are no further questions on this we will take up the next case.

MR. ARMSTRONG: I assume from what has been said from the bench, it is intended not to enter any order on the dual completion of well No. 4.

CHAIRMAN SHEPARD: That is right.

MR. ARMSTRONG: Since our preference is for 80-acre allowable we will carry that over until the next hearing.

MR. MORRELL: I would like to make a statement and ask a question. There has been referred to although the matter has been carried forward to the next meeting, as to an 80-acre allowable, to clear our minds, would it not be proper to state what you have in mind when you say 80-acre allowable.

Mr. HOLLOWAY: It would be exactly twice of whatever the 40-acre allowable is in the field at the time.

MR. MORRELL: That is all you have in mind?

MR. HOLLOWAY: Yes, sir. I Believe now in the Brunson it is 90 barrels and we would want 180, the McKee is 117 and that would be 234.

MR. MORRELL: Isn't it true the wells in section 15 are a part of the Brunson pool as now developed over an area of approximately ten miles in length?

MR. HOLLOWAY: It is a part of the Brunson field.

MR. MORRELL: Isn't it true that the allowable

with a deep well adaptation would be in excess of 120 barrels per day.

A I thought it would be 112.

MR. MORRELL: I don't know the exact figure but it is in excess, by virtue of the decrease in bottom hole pressure, isn't it a fact that the operators in the Brunson field voluntarily for a test period cut back production to 90 barrels a day?

A That is correct and I don't believe it disturbs that. Because we are allocating 80-acres. I don't see any difference in producing two wells at 90 barrels on a 40-acre unit than an 80-acre unit on one well if the productivity index shows it will produce it. I can't see how the average bottom hole pressure would be affected any more if each one was producing one well on 80-acres at the best interval, and producing one well on each 40 and taking the same allowable.

MR. MORRELL: Wasn't the purpose of that test to test the reduced rate per well.

A Well, I don't know. I never sat in a hearing. I thought it was a reservoir drainage proposition on the whole picture. There was too much oil taken out of the field and they wanted the reservoir produced - that was divided by wells which came out 90 barrels.

Q Wouldn't that exception during the test period be a discrimination against the other operators?

A No. In view of the emergency, I don't think so. Things are not normal today. We are trying to get as much oil produced as

possible and conserve all the steel possible, and we are only asking for it during the period of the emergency. I don't know how long it will be. We have established both zones will be productive and feel we are entitled to our share of the production on both 40-acre units.

Q And if you may affect the adjoining operators?

A It won't affect them. We will be affected by them if we are confined to one well, by lack of oil and they are draining us.

MR. MORRELL: Reference has been made here to the recent press announcement of a statement by the Secretary of the Interior Chapman recommending a four-point program for increasing oil and gas yields with a minimum use of tubular goods. His statement is one of overall policy. Each particular case should be considered on its own merits in the light of such overall policy. There is a wide variation in well spacing in Texas, Oklahoma and California. Request is being made for clarification of recommended wider well spacing as applicable to New Mexico. The Secretary's statement also referred to adjusting production quotas from individual wells to assure operators of fair treatment in production totals. The Commission stated that in view of the fact that an 80-acre allowable had been granted they would probably favor it. That is an informal statement. In the one exception granted by the Commission it involved an entire pool, did it not?

The application here couldn't involve the entire pool. It would

At their last hearing they have frozen what they call fractional units or tolerance units, tolerance acreage. It is a common practice in Texas where they have these irregular shaped units - the lines follow the middle of creeks and streams and no tract is more or less the same, it looks like a cross-word puzzle. When it is possible in proration units they provide for tolerance acres. Anything left over after everything has been drilled there in the units asigned are tolerances left over. The operators have been permitted to drill on the tolerance acreage. They have taken that away from us. It must be given to others. In the Shafter Lake pool we have a 40-acre unit and 40-acre tolerance. We have one well on a tract. It is 250 barrels a day. We have been going to drill another well. We can't now. We must assign that 80-acres to this well until the emergency is over and they tell us we can do so.

MR. MORRELL: I am in favor of anything that will save steel. That is a desirable and necessary thing under the emergency. But the action in a particular pool should be taken so that the discrimination will not affect any existing rights.

MR. HOLLOWAY: I think each case should have its own hearing and see whether or not anybody is discriminated against.

MR. MORRELL: That is right. I was just raising the question.

CHAIRMAN SHEPARD: Any one else?

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involve only a portion of the pool.

In that one exception granted by the Commission, it involved an entire pool, did it not? The application here couldn't involve the entire pool. It would involve only a portion of the pool. It is a question of whether the application would be fair treatment to all operators in the pool.

In the present statewide spacing you have got ten acres in Oklahoma, 40 acres out here, and 10 - 20 acres in Texas. I question the interpretation whether the growing spacing in the same area would be required to be doubled. During the last war the allocation of steel was a major item and it was based on one well to 40-acres. Whether there will be anything different or not this time will be another question.

I just waive that. I think there should be some clarification and not just a general waving of this publication.

MR. HOLLOWAY: We are not asking for 80-acre spacing until we have first shown by a well on each of the 40 that the entire 80 is productive. I think it would be unfair to give us 80 acres and let us drill a well without having shown it is all productive. To that extent it would be unfair and we don't want it. We don't want anybody else to have it. You have got your own interpretation probably of what the Department of Interior meant. I don't know. I do know though what the interpretation of the Railroad Commission is.

At their last hearing they have frozen what they call fractional units or tolerance units, tolerance acreage. It is a common practice in Texas where they have these irregular shaped units - the lines follow the middle of creeks and streams and no tract is more or less the same, it looks like a cross-word puzzle. When it is possible in proration units they provide for tolerance acres. Anything left over after everything has been drilled there in the units asigned are tolerances left over. The operators have been permitted to drill on the tolerance acreage. They have taken that away from us. It must be given to others. In the Shafter Lake pool we have a 40-acre unit and 40-acre tolerance. We have one well on a tract. It is 250 barrels a day. We have been going to drill another well. We can't now. We must assign that 80-acres to this well until the emergency is over and they tell us we can do so.

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MR. HOLLOWAY: I think each case should have its own hearing and see whether or not anybody is discriminated against.

MR. MORRELL: That is right. I was just raising the question.

CHAIRMAN SHEPARD: Any one else?

MR. LAVERING: Mr. Shackleford, you have stated you made very little study of the reservoir conditions in the Hare and Brunson field?

A That is right.

MR. LAVERING: How many completed wells have you operated in the Hare and Brunson field?

MR. SHACKLEFORD: Well, my experience is five on the State S lease. I haven't been down there.

MR. LAVERING: You have five completed Hare and Brunson wells in the entire field.

MR. SHACKLEFORD: No, wait a minute. We have two completed in the Brunson field.

MR. LAVERING: Do you think that that limited amount of experience in that field, as large as it is, and with the limited knowledge of the reservoir conditions, that those points shouldn't bear considerable weight into the proposition as to the feasibility of dual completions.

MR. SHACKLEFORD: I base my statement on the experience and information on the State S 4 and I still say that the State S 4 can be dually completed.

MR. LAVERING: You didn't answer the question. I asked you if it wasn't important, if you didn't consider it in your own mind to be the fact that the reservoir conditions and the production experience in those zones as to the

feasibility of the dual completion, don't those matters have to be considered in the application of dual completion?

A Oh, I think so. But I still base mine on the performance of No. 4.

MR. LAVERING: Of one well.

MR. SHACKLEFORD: Yes, sir. The information we have is the one we are after now.

MR. LAVERING: You have some limited experience with dual wells?

MR. SHACKLEFORD: Yes.

MR. LAVERING: Get them started off all right? How many of those did you carry to ultimate completion?

MR. SHACKLEFORD: Oh, I couldn't say because they haven't been depleted to date. I will say again it isn't the reservoir characteristic it is the economics of the company, that it is able to bear.

MR. LAVERING: Not having depleted any wells for dual completion, you haven't had any experience then with that phase of operation nearing completion. In your own mind, do you think, or don't you think, that dual completion will result in earlier abandonment of one of the horizons?

MR. SHACKLEFORD: What do you mean by abandonment?

MR. LAVERING: I mean -

MR. SHACKLEFORD: (Interrupting) Give it up?

MR. LAVERING: What has been - stoppage of production for a limited time?

MR. SHACKLEFORD: I sure do.

MR. LAVERING: Then what you say that such practice then would not be conducive to waste in the definition of the Commission -

MR. SHACKLEFORD: I can say there will be no waste. There might be a prolonged time of getting it out but there will be no waste.

MR. LAVERING: That is all.

MR. ARMSTRONG: I have no further questions.

CHAIRMAN SHEPARD: Anyone else?

MR. WEIR: My name is J. D. Weir of the Ohio Oil Company. I would like to state my views on the subject. I think in general we presently will agree with Mr. Dewey's statement that dual completions are a pretty poor way to produce oil and about the only time they are warranted is when one of the reservoirs or the other isn't capable of having economic completion made in it.

I don't believe there is that case in either Hare or Brunson field. They both have ample reserves to warrant drilling of individual wells. And on the matter of the transfer of the allowable, I don't quite agree with the theory

that 100 barrels from each of two wells is the same as 200 barrels from one well, for the reason that the Ellenburger is a fractured formation and it is quite easy to pull water into the well. It may be the time will come when the current wells in New Mexico are not capable of producing the market demand and steel is short. If so, why then you might have to do something. And in that case, I think it should be by complete fields and not individual wells. That is all I have to say.

CHAIRMAN SHEPARD: Anyone else have any statements to make. If not, we will take up the next case.

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STATE OF NEW MEXICO )
SS.
COUNTY OF BERNALILLO)

I hereby certify that the foregoing transcript of Case No. 260 before the Oil Conservation Commission on March 20, 1951, in the Council Chambers, City Hall, Santa Fe, New Mexico, is a true record of the same to the best of my knowledge, skill and ability.

Dated at Albuquerque, New Mexico, March 27, 1951.

E. E. GREESON

My Commission expires August 4, 1952.

Testimony of Mr. R. S. DEWEY before the Oil Conservation Commission on April 15, 1947, in re multiple-zone completions.

EXAMINATION OF MR. R. S. DEWEY

(After being duly sworn, Mr. R. S. Dewey testified as follows:)

MR. PATMAN:

Your name is R. S. Dewey?

MR. DEWEY:

That is right.

MR. PATMAN:

You are the same R. S. Dewey that testified before this Commission on January 10, 1947, and with reference to the subject multiple completions of oil and gas wells or both?

MR. DEWEY:

I don't recall the date but I did testify.

MR. PATMAN:

The hearing was held January 10, 1947, and you did testify - you wouldn't deny that?

MR. DEWEY:

Oh, no.

MR. PATMAN:

You are employed by the Humble Oil Company?

MR. DEWEY:

Yes, sir.

MR. PATMAN:

And you are the Division Engineer of the Humble Company at Midland, Texas?

MR. DEWEY:

West Texas, New Mexico area.

MR. PATMAN:

How long have you been in Midland?

MR. DEWEY:

Approximately 11 years.

MR. PATMAN:

Where were you before you were sent to Midland?

MR. DEWEY:

In McCamey.

MR. PATMAN:

That is still in west Texas?

MR. DEWEY:

That is correct.

MR. PATMAN:

How long have you been in West Texas?

MR. DEWEY:

17 or 18 years.

MR. PATMAN:

Does that approximately date the period of your employment with the Humble?

MR. DEWEY:

No, I have been with the Humble a little over 20 years.

MR. PATMAN:

There were no dual completions in the wells except during the last 17 years so far as you know?

MR. DEWEY:

I don't recall any.

MR. PATMAN:

If there were any you would remember?

MR. DEWEY:

None that I had any contact with.

MR. PATMAN:

You have not had any experience on the Gulf Coast in the last 17 years?

MR. DEWEY:

That is correct.

MR. PATMAN:

You testified here in January with reference to some 46 multiple completions the Humble had had experience with in the State of Texas?

MR. DEWEY:

I do not recall that testimony.

MR. PATMAN:

You recall generally talking about it?

MR. DEWEY:

Yes, sir.

MR. PATMAN:

How many of those 46 dual completions were made under your jurisdiction?

MR. LOWE:

It was 36 wells instead of 46 wells.

MR. PATMAN:

Well, of the 36, how many of those 36 dual completions weremade under your jurisdiction?

MR. DEWEY:

I think in the testimony I stated there are two.

Two made in West Texas and none in New Mexico.

MR. PATMAN:

So far as you know, there have never been any multiple completions in New Mexico?

MR. DEWEY:

By the Humble?

MR. PATMAN:

By anybody?

MR. DEWEY:

I don't know of any.

MR. PATMAN:

Do you know how many dual completions have shown gas-gas, oil-oil or gas-oil?

MR. DEWEY:

I have no idea.

MR. PATMAN:

Would 1,000 be about right?

MR. DEWEY:

I wouldn't commit myself to that number.

MR. PATMAN:

Do you know what percentage in Texas the Humble has made?

MR. DEWEY:

I have no idea.

MR. PATMAN:

I believe the testimony in Austin, the Sun Oil Company has made 90, do you know about that?

MR. DEWEY:

I do not.

MR. PATMAN:

There have been hundreds of dual completions in Texas. The Humble you say has made 36, and based upon this 36 you told this Commission dual completions cause waste and should not be granted.

MR. DEWEY:

That is my idea of it, exactly.

MR. PATMAN:

You base that on experience, hearsay, or what do you base it on?

MR. DEWEY:

I base it on partly what I read and have read in the literature- I think we furnished the Commission an A. P. I. paper, which to my mind indicated that dual completions contributed to waste.

MR. PATMAN:

How?

MR. DEWEY:

Inefficient operations.

MR. PATMAN:

How do you mean, inefficient operations?

MR. DEWEY:

In the practice to recovery of oil

MR. PATMAN:

Why aren't they practical?

MR. DEWEY:

They result in more losses.

MR. PATMAN:

Give me some of them.

MR. DEWEY:

Once when you have dual completions you have a lot of junk in the hole.

MR. PATMAN:

What is it?

MR. DEWEY:

Lot of gadgets.

MR. PATMAN:

Name them.

MR. DEWEY:

Tubing and other things.

MR. PATMAN:

You have tubing in single completions?

MR. DEWEY:

That is right.

MR. PATMAN:

The same things in single completions?

MR. DEWEY:

Have the cross-over tools in dual completions.

MR. PATMAN:

Not necessarily.

MR. DEWEY:

In certain instances.

MR. PATMAN:

Name instances.

MR. DEWEY:

IN some wells.

MR. PATMAN:

Suppose the well is flowing.

MR. DEWEY:

That is the honeymoon stage.

COMMISSIONER MILES:

Please explain what you mean by the honeymoon stage.

MR. DEWEY:

The honeymoon stage is when everything looks very rosy and the well is flowing quite a bit of oil, and it has not yet been determined just what the outcome will be.

MR. PATMAN:

Give me some more equipment you are going to have in this hole, more in dual completions and not in single completions.

MR. DEWEY:

The packers.

MR. PATMAN:

You have packers in single completions.

MR. DEWEY:

You have several packers - I don't favor packers in single completions, there are circumstances you may have to use a packer.

MR. PATMAN:

Why would setting of packers in dual completions cause difficulty that would make that dual completion impractical?

MR. DEWEY:

The packer may fail, and has often been known to fail.

MR. PATMAN:

Have you ever known a packerto fail in single completions?

MR. DEWEY:

Indeed I have.

MR. PATMAN:

Have you experienced packer failures in single completions?

MR. DEWEY:

Yes, sir.

MR. PATMAN:

You have seen packers in single completions?

MR. DEWEY:

Yes, sir.

MR. PATMAN:

You have seen formation packers?

MR. DEWEY:

Yes, sir.

MR. PATMAN:

You have seen them outside the casing?

MR. DEWEY:

That is right.

MR. PATMAN:

You have had failures in both instances?

MR. DEWEY:

That is right.

MR. PATMAN:

You wouldn't, in turn, recommend to this Commission that they stop the drilling of all wells in New Mexico where packers are being set, because they fail in single completions?

MR. DEWEY:

I would make no such recommendation, would you?

MR. PATMAN:

I am asking the questions.

Would you say the packer failures in single completions are greater or less than in dual completions?

MR. DEWEY:

I have no idea - packer failures in single completions are bad enough.

MR. PATMAN:

Generally, isn't it true when you set a packer in dual completions you set it in the casing perforating below and above, running tubing through it?

MR. DEWEY:

Our experience we have had in the two we have set, we did it that way.

MR. PATMAN:

Isn't that a more ideal method of securing an effective packer seal than on the outside casing where the hole might not be even

and you are setting it against the hole or pipe?

MR. DEWEY:

Of course the pipe is a little better than open formation. There are lots of different kinds of packers, different ways of setting them. Lots of circumstances that do not make it ideal.

MR. PATMAN:

My question was - you are more likely to secure effective packer seal set in the casing than you are when you set it against the formation or outside the casing?

MR. DEWEY:

I would say your hopes are higher.

MR. PATMAN:

Are you familiar with the equipment designed to effectuate this purpose?

MR. DEWEY:

I listened to Mr. Gray's explanation.

MR. PATMAN:

That is all you know about it?

MR. DEWEY:

I have had no practical experience with it.

MR. PATMAN:

You say in your testimony you wouldn't recommend them because you have corrosion - do you remember that general statement?

MR. DEWEY:

I think that is a very true statement.

MR. PATMAN:

Tell me why you would have more corrosion in two reservoirs than you would in one - more likely to have corrosion in two reservoirs than you would have in single completions of the same reservoirs?

MR. DEWEY:

Corrosion is general - it is very hard to predict corrosion. If you operate two reservoirs, either one or both may be corrosive, and if one of them is corrosive and the other not corrosive you have ruined that in your good reservoir with the corrosive one. If you open the one that is non-corrosive, you will probably not get a material amount of trouble, but the other one may be very corrosive and require the replacing of equipment.

MR. PATMAN:

The fact that you set that packer between the two horizons?

MR. DEWEY:

If you experience a condition like that, one corrosive and the other non-corrosive, the corrosive reservoir may corrode all the extra equipment and you might be out there working on that corrosion and all the time you are

losing production during that interrim from the other reservoir. The costs in operations are greatly increased.

MR. PATMAN:

Do you know of any situations like that - where you have this bad situation?

MR. DEWEY:

I can cite an example.

MR. PATMAN:

Give me an example of this bad condition where you have gotten your packer out working on it in this corrosion.

MR. DEWEY:

I did not say necessarily packer.

MR. PATMAN:

Give me an example.

MR. DEWEY:

We have had some wells in our fields.

MR. PATMAN:

You got dual completions there?

MR. DEWEY:

No, sir. Corrosion in the Hardin-Glascock field.

MR. PATMAN:

Dual completions there?

MR. DEWEY:

Not on our property.

MR. PATMAN:

Anywhere?

MR. DEWEY:

Not so far as I know.

Gold-Smith field is very corrosive, the old Anlon field is very corrosive and a large number of West Texas-New Mexico fields are corrosive.

MR. PATMAN:

In all of those fields which you have named, and in which you state you have the problem of corrosion, are you constantly working on those wells to the extent that you do not ever get to produce them?

MR. DEWEY:

The Smith well is so uneconomical that the cost of corrosion and replacement of equipment far exceeds the amount of money we can get from production.

MR. PATMAN:

How about the Goldsmith?

MR. DEWEY:

It is a monument to corrosion.

MR. PATMAN:

Let us assume that well is two separate horizons and that you had dually completed that well, and the other horizon you are going to find, and which you did not find - you have closed your

well in on single completion.

MR. DEWEY:

And the casing is leaking --

MR. PATMAN:

You have closed your well in.

MR. DEWEY:

Closed in temporarily.

MR. PATMAN:

You could run a string inside.

MR. DEWEY:

You wouldn't have the room.

MR. PATMAN:

You have set too small casing.

MR. DEWEY:

What size do you advocate when you run a 4 inch casing you are just out of hole.

MR. PATMAN:

Would the fact that you dually completed a well cause more corrosion than if you had completed those two reservoirs singly?

MR. DEWEY:

MR. Patman, I do not cause corrosion.

MR. PATMAN:

Multiple completions don't cause it either do they?

MR. DEWEY:

I have little hearsay evidence on that - it is something

I do not understand, perhaps you will. I have been told in the Goldsmith field where packers have been set that they find the setting of the packer inside the casing, for some unknown reason has stimulated the corrosion so that the tubing is very badly eaten out.

MR. PATMAN:

That is a single completion well - Would a dually completed be worse?

MR. DEWEY:

I think so.

MR. PATMAN:

Isn't it the chemical characteristics of the liquids from that formation and then the packer?

MR. DEWEY:

If you have an uneconomical situation.

MR. PATMAN:

Anser my qeustion.

MR. PRESSLER:

Mr. Patman is talking about what causes corrosion, it will be the same from the chemicals in oil of dually or singly completed tests - as to what causes corrosion and if corrosion what will be the effect in single and dual completions.

It is the effect of corrosion in dual completions, and I think that is the question that is concerning the Commission.

MR. DEWEY:

I cannot explain so, but the people that told me about it are convinced that the setting of that packer, for some unknown reason, accelerates corrosion. They don't know the cause, they aren't able to tell it to me.

MR. PATMAN:

That is a singly completed well?

MR. DEWEY:

Yes, sir.

MR. PATMAN:

Isn't ittrue the Gulf is producing in the Goldsmith?

MR. DEWEY:

Yes, sir.

MR. PATMAN:

They have had considerably more experience in Goldmsith than you have?

MR. DEWEY:

You think because they have more wells, they have had more experience?

MR. PATMAN:

They have had more opportunity haven't they?

MR. DEWEY:

We are concerned in what causes corrosion - by the economic effect of corrosion, if you have two zones producing, dually completed wells, and one or two zones with terrific corrosion and it is continually working, it is uneconomical.

MR. PATMAN:

Who is the technical expert, you or your lawyer?

MR. DEWEY:

I imagine I have had a little more experience than he has. I imagine I have --

COMMISSIONER MILES:

Would the Gulf be willing to consider this on an individual well basis?

Testimony of Mr. R. S. DEWEY before the Oil Conservation Commission on January 10, 1947, in re multiple-zone completions.

(EXAMINATION OF MR. R. S. DEWEY)

(After being duly sworn, Mr. Dewey testified as follows)

MR. W. E. HUBBARD (Examiner)

Mr. Dewey, will you state your full name, affiliation, and experience?

MR. DEWEY:

My name is Robert S. Dewey, I am employed by the Humble Oil Company and have been employed by them the past 20 years, most of the time in the West Texas and New Mexico area. I am the Division Petroleum Engineer, located at Midland, Texas.

MR. HUBBARD:

You mind stating, Mr. Dewey, what you know of the operations of the Humble Oil Company in dual completions, and the new experience in West Texas, which would have any bearing on the propriety of dual completions.

MR. DEWEY:

A survey made recently of the Huble Company's experience with Multiple zone completions indicates out of 36 multiple zone completions made, up until the late Spring

of 1946, the Humble Company had 14 failures, and has had to work over 18 of these wells as a direct result of having completed them as dual zone completions. In addition to this, for the past 16 months, ending April 1, 1946, the Humble Company had 78 packer failures; and single zone completions in its operations - of 58, these failures where the cause was known, 27 leaked on test, 12 could not be unseated, 5 hung up going in the hole, and 4 failed to set. The sets gave way on 4 packers when set while running in the hole, and for the other 5 it was considered the channels behind the casing were responsible for failure to obtain shut off. The detail material of which that is a summary - we would be glad to prepare. The show of individual wells at a depth at which the completions were made - the depth at which the packers were set, and the cause of failure as we interpreted it. If the Commission would desire that type of information in detail we would be glad to submit it to them for this hearing.

MR. SPURRIER:

Do you have that information in a form you may submit it right now as an exhibit?

MR. DEWEY:

No, it isn't ready. We have it in a way, but not

in a way we would like to handle it.

MR. SPURRIER:

We will put in the record you may prepare it in detail and send it in and we will make it a part of this record.

MR. DEWEY:

That record will cover the Humble's experience in West Texas and New Mexico, as well as being included in the whole. We draw a conclusion from our experience of multiple zone completions based upon failures - we have noted that they have not proved satisfactory and that there is still room for improvement in the manner of both making multiple zone completions and the equipment used. We do not feel that either have reached perfection yet.

MR. SPURRIER:

You think, Mr. Dewey, there is a good chance of doing this, once a great number of wells in the pool have been dually completed?

MR. DEWEY:

I do - I think one or two poorly completed may cause serious migration from one zone to another.

MR. SPURRIER:

Will that cause waste?

MR. DEWEY:

It might cause very serious waste, particularly the oil from one horizon got away and got into sand - got into water

sand, and the waste might be very extensive.

I might illustrate one basis for that conclusion - The operators in the Seminole sand in West Texas decided to employ a consultant to analyze the reservoir characteristics in the field to determine for the current condition of the reservoir and make recommendations, looking toward the future production and possible secondary recovery program or gas maintenance program.

In the Seminole reservoir there are two horizons, the upper is the Yates and it is in the central part of the field, it carries abnormally high gas, the oil productive horizon is in the San Andres formation, a considerable depth below the yates horizon. The original gas cap in the San Andres formation - this gas cap was under laid by oil in the drilling of the reservoir, the operators found it rather difficult to drill their wells without setting an intermediate set of casing to exclude the Yates sand gas.

In fact, the rules and regulations were written by the Texas Railway Commission requiring the central part of the shale each operator would case off the Yates gas sand. The consultant, after analyzing for some 6 or 8 months came to the conclusion that there must be migration downward on the Yates gas sand

into the gas cap overlying the oil production and that this migration of free gas from the upper to the lower horizon was of such serious extent they might be unable to complete their analysis - so the Seminole reservoir test confirmed the fact that there was sucha migration. At the present time the operators in the Seminole field are concerned over this migration and we are trying to find which well or wells are contributing the gas to the lower horizon.

This illustration, to my mind, even where operators use due diligence and have submitted cases, made tests prescribed by the regulatory board, even then perhaps one or two, perhaps more wells can change very greatly the reservoir characteristics from one reservoir flow into another reservoir under multiple zone conditions.

A Similar thing might happen, in fact an opportunity for it to happen would be greater I think than under the example I have cited. We do know in the Seminole reservoir the corrosion is bad, casing corrosion, and we do know we have casing corrosion in such pools as Hobbs in New Mexico, and other pools in the Hobbs pools. For instance one operator, the Shell Company, had been carrying on a rather extensive program in setting inside strings of casing in a great many of their wells. This company felt that it was pertinent to

protect their investment and future recovery in the Hobbs pool, setting strings of casing - and a good deal of expense to themselves. I am sure they are not the only operators in New Mexico that have similar conditions.

I think casing corrosion is one of the very serious things that should be considered in writing any general order or any specific order relative to permitting dual completions. As yet, we know very little about preventing casing corrosion. One method that has been tried and is being tried is by lubricating foamites and other compounds down the annulus between the casing and tubing to act as an equalizer to prevent the corrosion from attacking the casing.

Under dual completions method where the annulus space is used as a flow string we do not see how an operator can use preventitive measures so far as anything to prevent casing corrosion. We also know that in single completions we have a great deal of trouble with parrafin, wells have a tendency to parrafin up. We don't know just how the multiple zone completions and operator is going to handle the parrafin problem, how he is going to successfully pull the tube and scrape the parrafin that may accumulate in the annulus. We have heard nothing from the relative solution of that problem. I think it is one that should be given consideration in the multiple zone completions in

the New Mexico area.

MR. SPURRIER:

Did the Humble Company operate in the field now under construction?

MR. DEWEY:

That is correct - in the Hobbs pool the Humble operates several leases. Our principal is our federal Leonard lease which offsets the Gulf West Grimes lease, in which Mr. Gray has proposed making dual completions. This is a federal lease which, under the current federal regulations, will not permit us to make a dual completion to protect withdrawals from the Bowers sand. Not that we have planned or care to make dual completions; it has been our intention that as the Bowers sand develops we would drill a well to the Bowers sand and to complete it there, and we have had no idea of trying to make dual completion between the present sand and ours and the Bowers sand. In fact, we oppose Mr. Gray's application in that we feel such application sets a precedent in the Hobbs field which we think would be detrimental in any way not only to ourselves, but to the other operators interested in the pool.

COMMISSIONER MILES:

Do you feel that would apply to the other fields?

MR. DEWEY:

We do - we feel the regulations now in force will serve

best.

COMMISSIONER MILES::

You feel it will be economical?

MR. DEWEY:

We feel economy over a long range will be better served under single completions as a whole than it will under dual completions. Dual completions indicate a nice initial saving - on down the line the difficulties that can and do arise under it in working wells over and loss of oil, and other things will more than neutralize the initial savings. We think in individual cases perhaps dual completions will effect a nice saving for some particularoperator.

COMMISSIONER MILES:

In all particular cases from conservation of the oil?

MR. DEWEY:

If some operators are particularly luck in the installation and type of reservoir - he might not have parrafin or corrosion trouble, may not have these two things to contend with. Some other operator may be led into following the example.

Just one other thing relative to the Gulf application for dual completion in Hobbs pool, I wish to point out to the Commission if anything was offered in the test relative to what intentions the Gulf had relative to the taking of bottom hole pressure - and other things that might be of interest following

the productivity of Bowers sand.

It has been the Humble Company's experience that where dually completed wells are permitted it is very difficult to get the same type and quality of production data and pressure data that we feel we need in making our reservoir studies. If we do not have that type of information we are unable to analyze our reservoirs and determine whether consideration should be given to secondary recovery pressure maintenance and other means of increasing the ultimate recovery that might be obtained on just direct flow to abandonment.

I have here a paper that was prepared for presentation before the AP.IL, and Pacific Coast Division of Production, American Petroleum Institute, Los Angeles, California. This is a preprint I have obtained from the API titled "Dual Performance of Multi-Zone Wells in the Wilmington Field, California," by Carlton Beal of the Richfield Oil Corporation, and Read Winterburn, Union Pacific Railroad Company.

I would like to introduct this as an Exhibit in the case.

Relative to the Drinkard-Paddock area - for another purpose we prepared a typical cross section of this area which might be of interest in showing and following this discussion of the various zones. We are particularly interested in the Paddock area, due to our development on our New Mexico State lease - Up to December 30, 1946, we had 11 wells completed on that lease, we took some productivity on the State, S9, S10, and S11, and the producitivity

factor on New Mexico State was taken November 6, 1946, after just 5 hours test - indicated fluid productivity factor of 29 or 35, this fluid productivity became a substantial decline, if the test is extended long enough the productivity factors are rather low, which does not indicate that it is too good producing property.

S9 had .83, .43, S10 had .36 to .18, S11 had .77 to .30 These increasing productivity factors were accomplished by increasing the gas-oil ratio and also by increasing water percentages. We are perturbed on this lease; we have at least 3 horizons in the Paddock Pay, and in these 3 horizons we haven't as yet been able to identify an individual well - just which ones are making water and which ones are not. While the water percentage is not very large as yet, it is increasing and looks to us that this would constitute a very serious problem on that lease before long. We do feel these wells, if they had been dually completed it would have been almost impossible for us to gather the type of information we will need to identify the water - where the water is coming from, and to do the necessary shut off when it becomes too large, without sacrificing production from the lower Drinkard horizon during the time we are working over the well and the expense would be greater than it will be under the condition where each well is produced from one horizon at the time.

We do view with alarm the declining pressure Mr. Gray

testified to. In the Drinkard field we may have some indications of the gas cap, which may need to be corrected. We feel so far as our property is concerned we would aid to have the Drinkard and Paddock wells dually completed. There is more water being produced from our Drinkard area than there is from the Paddock wells. The gas-oil ratio, the last time we consulted, it was 1732 pounds - a rather high ratio for the length of time the wells have been under production.

In completing Greenwood in the Brunson field, we found there were two zones of production in the Ellenburger line which were substantially separated from each other by a barren streak - shortly after completion of the well the water percentage increased, at an alarming rate, so that we felt it was necessary to go in and abandon the lower part of the Ellenburger formation.

If you will note from the cross-section submitted to you, that this covers quitean area and it might be possible to get almost any number of wells completed between different zones - it might be possible if the area continues to develop as it has in the past you could go down one well beyond one horizon and follow where it is duly completed andfollow down progressively through 6 different steps across the field until you had everything tied from the Paddock Pay clear to the Ellenburger Pay, some gas drives andsome

water drives, some would necessarily have to be pumped. It would become an exceedingly complicated pattern, and present a problem to any regulatory body to devise any adequate means of policy and maintenance of equitiesbetween the operators. We feel that dual completions were justified as a war emergency, but the war emergency is largely in the past. We might look forward to sufficient steel to give us the necessary casing to make single casing in our wells and not too much undue delay.

In conclusion, I wish to emphasize it is our intention to continued with the single well completions, and we hope we will not be forced to meet offsets thatare dually completed.

MR. SELLINGER:

Mr. Dewey, the 58 instances you referred to earlier covered flowing wells did they not?

MR. DEWEY:

That is my understanding.

MR. SELLINGER:

Where you have a dual completion in which one or both are pumping, it would be less satisfactory than a flowing dual completion would it not?

MR. DEWEY:

I think greatly so. That would depend upon whether the upper formations were pumped or the relative amount of trouble you would have with the two.

MR. SELLINGER:

Where one or both are pumped, the problem would be greatly exaggerated would they not - from a practical point of view?

MR. DEWEY:

That is right, the packing element would be increased. The packers treated as being such simple mechanisms, but besides the principal packer you have to put in a well, there are other packing elements in there, so that you may have from 5 to 8 different elements that have to hold. It isn't just one single packer. Where you are trying to pump through a pack there is a certain amount of wear and the difficulties are greatly increased.

MR. SELLINGER: That is all.

MR. ATWOOD:

Mr. Dewey, wouldn't it be up to the individual operator in each individual case whether or not the advantages out weighed the disadvantages in making dual completions?

MR. DEWEY:

I think we are in a common reservoir and we all have common interests into those reservoirs, and any damage that is done by one operator may lead to damage to the other operators in there - I do not see why one operator should have the right to go in there and jeopardize the equity the other operators have in the pool to gain maybe temporary economy.

MR. ATWOOD:

Damage can only result through improper completion couldn't it?

MR. DEWEY:

The operator may make a completion with all best intentions and he may feel it is a proper completion, and nobody may detect the damage for a considerable length of time - it is similar to that case I tried to explain to you about the Seminole field. You might not be conscious there is any damage done. The same thing could happen with multiple zone completions, everybody be entirely innocent of the damage.

MR. ATWOOD:

You claim theSeminole pool damage was due to multiple completions?

MR. DEWEY:

No, sir, that was due to something else.

MR. ATWOOD:

And if a failure in completion occurs, or if later a failure occurs, can it not be detected by proper inspection?

MR. DEWEY:

With the operators in the Seminole field, they were as diligent as operators generally are.

MR. ATWOOD:

I am speaking about multiple inspection in Lea County,

New Mexico.

MR. DEWEY:

That is a question I could not answer flat yes or flat no - We have none in New Mexico that I know of.

MR. ATWOOD:

If it is permitted - you have said damage could come about through failure - - -

MR. DEWEY:

It could.

MR. ATWOOD:

Cannot that failure be detected?

MR. DEWEY:

I would have to answer that no, because of the fact that it might be detected after the damage is done. It isn't a question I could say yes or no to. It might be detected - there is a very good chance the damage would be done before it was detected.

MR. ATWOOD:

That could also happen in single zone completions.

MR. DEWEY:

Exactly, and does happen, but the damage is not as great, is not as hazardous an operation as packer setting. I think wells that have to be maintained - I don't think the two can be compared.

MR. ATWOOD:

How many cases do you know of where damage from multiple

zones or dual completions have happened?

MR. DEWEY:

Frankly, I don't know of any, I am not experienced in multiple zone completions, because we have madebut two and both of those were the very simple type or we were producing gas through theannulus and oil through the tubing, and all it required was the simple packer. Did not require a lot of supplemental gadgets such as multiple zone completions may run into.

MR. ATWOOD:

Isn't is possible by use of proper material, skill, and handling - to successfully complete dual zone operations in Lea county?

MR. DEWEY:

I think it is possible, but one or two bad ones may neutralize all good ones.

MR. ATWOOD:

You have just said there were bad ones in single zone operations - completions.

MR. DEWEY:

Yes, we have so many troubles we don't want to complicate them with a lot more.

MR. ATWOOD:

You understand this order is permissive only, and not mandatory?

MR. DEWEY:

Yes, I understand that, but if a permissive order like that is granted itsooner or later becomes almost mandatory by its greater enlargment.

MR. ATWOOD:

Wouldn't thatbe because of the success of it?

MR. DEWEY:

Not necessarily - no, sir.

MR. ATWOOD:

If it is a failure it would not bemandatory. You object, I believe, to the completion of the single well in Hobbs as dual completion well, do you think it will damage the Humble lease to do that?

MR. DEWEY:

If they complete a dual well there, I anticipate the federal authorities will expect us to complete a dual well.

MR. ATWOOD:

Anytime your acreage is offset by production from another zone, you try to offset it don't you?

MR. DEWEY:

Yes, we try to do that.

MR. ATWOOD:

In this case, you would be willing to do it, if Mr. Morrell would let you, wouldn't you?

MR. DEWEY:

I think so.

MR. ATWOOD:

Your objection is ? ?

MR. DEWEY:

The unfairness of it.

MR. ATWOOD:

You own federal leases and they own private leases. You want your federal leases equalized by burdens on the other fields?

MR. DEWEY:

No, we manage to carry our load.

MR. ATWOOD:

You are afraid they are going to do it - - -

MR. DEWEY:

We would like to get characteristics of that well, and be able to get production history and things difficult to get with dual completions.

MR. ATWOOD:

I believe you say down in Texas you have not had very good luck in dual completions ??

MR. DEWEY:

We have had two in our area, one of them - - I would say they were both successful, so far as the mechanics in dual completion was concerned. One of them was unsuccessful due to the fact that we did no develop the gas reserve we thought we had. The other one was successful, it was done as a war emergency.

MR. ATWOOD:

Other companies have had fair success, have they not?

MR. DEWEY:

I do not like to give a lot of hearsay, but - - -

MR. ATWOOD:

You have heard the testimony of Mr. Gray, the Gulf's experience?

MR. DEWEY:

He was testifying about Kansas and Oklahoma.

MR. ATWOOD:

You think your failure down in Texas was on account of being in Texas?

MR. DEWEY:

The conditions might be different, may be we are just poor operators in Oklahoma.

MR. ATWOOD:

That is all, thank you.

MR. S. A. SANDERSON:

On these 58 dually completed wells where you had the 8 failures, do you know in a general way, where they were located.

MR. DEWEY: Two of them were located in West Texas area, and the others in the operating territory of the Humble. I can give you a general idea, I think, where they were located. We are going to supply this to the Commission.

MR. SANDERSON:

Do you know anything about the conditions with respect to temperature in those cases?

MR. DEWEY:

The temperatures are much higher than they are in the West Texas-New Mexico area. The tabulation will give the depth of those and we can supply the temperatures if you would be interested.

MR. SANDERSON:

In a general way the temperatures down there exceed 200 degrees?

MR. DEWEY:

I could not testify to that, not well enough acquainted with that country to say they exceed 200 degrees.

- - - - - - - - - - -

# BOTTOM HOLE PRESSURE TESTS

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "S" #4

2-22-51 2-24-51

Ex "D"
Case 260

SUBSURFACE ENGINEERING COMPANY

production engineering services

TULSA, OKLAHOMA
SNYDER, TEXAS
OKLAHOMA CITY, OKLAHOMA
MIDLAND, TEXAS
HOUSTON, TEXAS
LINDSAY, OKLAHOMA
PREMONT, TEXAS

SUBSURFACE ENGINEERING COMPANY • production engineering services
701 S. 33rd WEST AVE. TULSA TELEPHONE 54-5819
1907 Bell Avenue Houston

February 24, 1951
B237-51

Tide Water Associated Oil Company
McClintic Building
Midland, Texas

Attention: Mr. E. E. Tucker

Gentlemen:

Enclosed please find report showing results of P. I. Test run on Tide Water State "S" #4 in the Brunson Ellenberger Field, 2-22-51 through 2-24-51.

Thank you very much for permitting us to serve you.

Yours very truly,

SUBSURFACE ENGINEERING COMPANY

Louis A. Picard

Louis A. Picard

LAP/ev

Encl. 4 copies report

## STATE "S" #4 - BRUNSON FIELD

### DRILL STEM TESTS

| DST # | #1 | #2 | #3 | #4 |
|---|---|---|---|---|
| | Simpson | | | |
| Formation Tested | McKee | Connell | Ellenberger | Ellenberger |
| Total Depth | 7520' | 7646' | 7896' | 7896' |
| Packer Set At | 7398' | 7556' | 7739' | In 5½ Csg. @ 7672' |
| Total No. Feet Tested | 122' | 90' | 57' | Perf. 7706-32' |
| Size Hole | 6 3/4 | No Test | 6 3/4 | |
| Size Drill Pipe | 3 1/2 Med. | | 3 1/2 | 2 EUE |
| Choke Size: | | | | |
| (1) Top | 1" | | 1" | 1" |
| (2) Bottom | 5/8" | | 5/8" | 5/8" |
| Blanket | None | | None | None |
| Total Time Tool Open | 1 Hr. 18 Min. | | 1 Hr. 18 Min. | 1 Hr. |
| Gas to Surface (Time) | 3 Min. | | 5 Min. | Slight Blow |
| Mud to Surface (Time) | 11 1/2 Min. | | 40 Min. | - |
| Oil to Surface (Time) | 12 1/2 Min. | | 48 Min. | - |
| Flowing Data: | | | | Did Not |
| (1) Total Time Flowed | 1 Hr. 6 Min. | | 30 Min. | Flow |
| (2) Rate of Flow | 50 BPH | | 56.6 BPH | - |
| (3) % Oil | 100 | | 100 | - |
| (4) % Water | - | | - | - |
| (5) Flowing Surf. Pressure | ? | | - | - |
| (6) Total Bbls. Flowed | 55 | | 28.29 | - |
| Recovered (When Pulled): | | | | |
| (1) Oil | 180' | | 900' | - |
| (2) Water | - | | - | - |
| (3) Mud | - | | - | - |
| Flowing (Final) BHP | 1366# | | 1160# | 730' Drlg. |
| Length of Time Tool Closed | 15 Min. | | 15 Min. | 350# |
| Static BHP | 2730# | | 2845# | 15 Min. |
| Initial Hydrostatic Mud Wt. | 3995# | | 3550# | - |
| Final Hydrostatic Mud Wt. | 3995# | | 3405# | 3455# |
| Mud Wt., #/Gal. | 9.3# | | 9.2# | 3455# |
| Date Tested | 1-4-51 | 1-6-51 | 1-12-51 | 9.0# |
| | | | | 1-16-51 |

Failed to test this zone when drilled - Geol. reported no staining - Test varified same.

Ex. C

BEFORE THE

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

- - - - - -

PROCEEDINGS

The following matters came on for consideration before the Oil Conservation Commission of the State of New Mexico pursuant to legal notice at a hearing held on March 20, 1951, at 10:00 a.m., at Santa Fe, New Mexico:

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held March 20, 1951, beginning at 10:00 o'clock a.m. on that day in the City of Santa Fe, New Mexico, in the Council Chamber of the City Hall.

STATE OF NEW MEXICO TO:

All named parties in the following cases and notice to the public:

Case 260:

In the matter of the application of the Tide Water Associated Oil Company for authority to dually complete State S No. 4, located

in the NE/4 NW/4 section 15, T.21 S, R. 37 E, Lea County, New Mexico, for the Ellenburger and McKee Formations; or in the alternative to authorize transfer of allowable of State S No. 4 to State S No. 3 for Ellenburger production.

Case 261:

In the matter of the application of Cities Service Oil Company for authority to dually complete State S No. 3, located in the SE/4 NW/4 section 15, T.21 S, R. 37 E, Lea County, New Mexico, in the Ellenburger and McKee formations.

Case 262:

In the matter of the application of Byrd-Frost, Inc. for designation and spacing rules for a Mesa Verde gas pool to be known as Largo Mesa Verde gas pool, comprising:

T. 29 N, R.8 W
Sections 1 to 36, inclusive

T. 28 N, R.8 W
Sections 7 to 18, 20 to 28, and 34 to 36

T. 27 N, R.8 W
Sections 1 to 4, and 9 to 12

T. 29 N, R.7 W
Sections 17 to 20, and 28 to 34

T.28 N, R.7 W
Sections 7 to 10, 15 to 22, and 26 to 35

Case 263:

In the matter of hearing to be held by the Oil Conservation Commission, upon its own motion, for the designation, extension, or deletion of the various pools listed and described, as follows:

Extend the House pool:

T. 20 S. R.38 E
S/2 Section 11
NE/4 and S/2 section 12
N/2 section 13
N/2 section 14

T. 20 S. R.39 E
W/2 section 7
NW/4 Section 18

Extend the Bough Pool:

T.9 S, R.36 E
S/2 section 7
All section 18

Extend the Vacuum pool:

T.18 S, R. 34 E
All section 5

Extend the Bagley Siluro-Devonian pool:

T. 11 S, R. 33 E
SE/4 section 33
SW/4 section 34

T. 12 S. R.33 E
W/2 section 3
E/2 section 4

Create the following pools:

Twin Lakes pool
T.8 S, R. 28 E
SE/4 section 35
S/2 section 36

T.9 s, R.28 E
All section 1
E/2 section 2

Fowler-Blinebry pool

T.24 S, R. 37 E
W/2 section 15
All section 16
N/2 section 21
NW/4 section 22

Gladiola-Abo pool

T. 12 S, R. 37 E
All section 13
E/2 section 14
NE/4 section 23
N/2 section 24

Levick pool
T. 8 S, R. 27 E
SW/4 section 5
S/2 section 6
all section 7
W/2 section 8

Keohane pool
T. 9 S, R. 29 E
SE/4 section 1
E/2 section 12
T.9 S, R. 30 E
S/2 section 6
All section 7

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on February 21, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
s/ R. R. Spurrier
R. R. SPURRIER
Secretary.

SEAL

BEFORE:

Hon. Guy Shepard, Member and Acting Chairman
Hon. R. R. Spurrier, Member and Secretary

REGISTER:

G. T. Hanners
U. D. Sawyer
Lovington, New Mexico

John Major
Oil Development of Texas
Amarillo, Texas

E. A. Paschal
Oil Development of Texas
Amarillo, Texas

Charles E. Shaver
Humble Oil and Refining Company
Houston, Texas

J. R. Puckett
Magnolia Petroleum Company
Kermit, Texas

L. J. Gude
Oil Development Company of Texas
Amarillo, Texas

Frank Purdum
Subsurface Engineering Company
Tulsa, Oklahoma

Bernerd A. Ray
Consulting Geologist
Midland, Texas

M. B. Penn
Mid-Continent
Tulsa, Oklahoma

E. J. Pierce
Mid-Continent
Midland, Texas

J. H. Crocker
Mid-Continent
Tulsa, Oklahoma

E. P. Keeler
Magnolia Petroleum Company
Dallas, Texas

Foster Morrell
U. S. Geological Survey
Roswell, New Mexico

Robert E. Murphy
Magnolia Petroleum Company
Roswell, New Mexico

E. E. Kinney
New Mexico Bureau of Mines
Artesia, New Mexico

Hiram M. Dow
Roswell

Wm. Ed McKellar, Jr.
Magnolia Petroleum Company
Dallas, Texas

E. C. Iden
Oil Development Company of Texas
Albuquerque, New Mexico

Mrs. U. D. Sawyer
Crossroads
New Mexico

Don G. McCormick
Carlsbad, New Mexico

George Hirschfeld
New Mexico Oil & G. E. C.
Hobbs, New Mexico

Elvis A. Utz
Oil Conservation Commission
Santa Fe, New Mexico

H. A. Nedom
Amerada
Tulsa, Oklahoma

C. V. Millikan
Amerada
Tulsa, Oklahoma

R. U. Fitting, Jr.
U. D. Sawyer
Midland, Texas

George Graham
Oil Conservation Commission
Santa Fe, New Mexico

- - - - - - -

CHAIRMAN SHEPARD: The meeting will come to order. The first case to be taken up is No. 1, the allowable. Mr. McCormick, will you proceed?

MR. McCORMICK: I would like to have Mr. Utz and Mr. Kinney sworn, please.

(Mr. Utz and Mr. Kinney sworn.)

ELVIS A. UTZ,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. McCORMICK:

Q Go ahead and state your name.

A Elvis A. Utz, engineer for the Oil Conservation Commission.

Q I will ask you if you have made a study of the market demand for oil for the State of New Mexico for April 1951?

A Yes, I have.

Q You have an estimate of the market demand made by the United States Bureau of Mines?

A No, I do not have it, this month, it didn't arrive.

Q Have you received and compiled the nominations of purchasers?

A Yes, I have.

Q What do the nominations total?

A The total nominations are 142,480 for the state; 141,620 for the southeast.

Q How does that compare with the nominations for the preceding month?

A The state nominations are 370 barrels up,or 3 per cent; the nominations for the southeast are 270 barrels increase.

Q I will ask you if you have an opinion as to what the reasonable market demand for oil per day for the state will be during the month of April?

A Yes I have an opinion as to the estimate, and it is 152,204 barrels per day for the state. For the southeast - I am sorry - correction. 152,204 for the southeast and 154,054 for the state.

Q In your opinion how much of that would be allocated to San Juan County?

A 850 barrels.

Q In your opinion can the balance of the market demand be met by the allocated pools of southeastern New Mexico?

A According to all documentary evidence we have, at hand, they can, yes.

Q Is the potential producing capacity of all wells in the southeastern New Mexico greater than the figure you have given?

A I believe they are.

Q To prevent waste, in your opinion, is it necessary to pro rate and allocate production in southeastern New Mexico?

A In my opinion, it is.

Q In your opinion, can the pools of southeastern New Mexico produce 152,204 barrels per day without permitting waste?

A Yes, they can.

Q What do you recommend as the daily allowable production then for southeastern New Mexico?

A 52 barrels normal unit allowable the same as last month.

Q And how should production be distributed?

A According the present rules and regulations of the Oil Conservation Commission.

Q Do you have any other statement to make?

A No, I don't believe I do at this time.

Mr. Mc CORMICK: Any questions of Mr. Utz?

(Witness excused.)

E. E. Kinney,

having been first duly sworn, testified as follows:

DIRECT EXAMINATION

By MR. McCORMICK:

Q Go ahead and state your name and official position.

A Ed Kinney, petroleum engineer, New Mexico Bureau of Mines.

Q Are you making a continuing study of market demand for oil in the State of New Mexico?

A I am.

Q How long have you been making this study?

A About 16 months.

Q Please state in your own words the market conditions for oil in New Mexico at this time.

A For the last four weeks the indicated movement of oil in New Mexico has been a net to storage, a very slight amount, but to storage instead of from storage as in the past.

Q How is the market, is it firm?

A The market demand is strong. The latest Bureau of Mines figures on accrued stocks is just slight over 246 million dollars. However, production stocks; gasoline, kerosene, and gas - oil - are increasing slightly.

Q Do you have any other statement to make at this time?

A It would be my recommendation that the unit allowable be not increased above last months allowable.

Q Remain at 52 barrels?

A Remain at 52 barrels, and try to bring up storage a little bit more.

MR. McCORMICK: Any questions of Mr. Kinney? That will be all.

(Witness excused.)

CHAIRMAN SHEPARD: Does anyone have any statement to make regarding the allowable. If not, we will take up the next case.

Case 149 by agreement of counsel will be continued until nine o'clock in the morning.

- - - - - -

STATE OF NEW MEXICO )
SS.
COUNTY OF BERNALILLO)

I hereby certify that the foregoing transcript of the allowable hearing before the Oil Conservation Commission on March 20, 1951, in the Council Chambers, City Hall, Santa Fe, New Mexico, is a true record of the same to the best of my knowledge, skill and ability.

Dated at Albuquerque, New Mexico, March 27, 1951.

E. E. Greer

My Commission expires August 4, 1952.

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "S" #4

2-22-51

2-24-51

PRODUCTION DATA

| Status | Drop In BHP PSIG | BHP PSIG | Bbls/Day | MCF/Day | GOR | P.I. |
|---|---|---|---|---|---|---|
| Static | | 2706 | | | | |
| Flowing 12/64" ok | 87 | 2619 | | | | |
| Flowing 10/64" ok | 69 | 2637 | 195 | | | |
| Flowing 8/64" ok | 47 | 2659 | 137 | 199 | 1021 | 2.241 |
| | | | 81 | 145 | 1058 | 1.985 |
| | | | | 94 | 1160 | 1.723 |

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "B" #4

2-22-51 2-24-51

G.O.R. & P. I.

12/64" ok - Oil Production - ~~199,000~~ 195 bbls./day

Gas Production - 199,000 cu.ft./day

Drop in BHP 87#

GOR = $\frac{199,000}{195}$ = 1021 cu.ft./bbl.

P.I.= $\frac{195}{87}$ = 2.241 bbls./day/# drop BHP

10/64" ok - Oil Production - 137 bbls./day

Gas Production - 145,000 cu.ft./day

Drop in BHP 69#

GOR = $\frac{145,000}{137}$ = 1058 cu.ft./bbl.

P.I.= $\frac{137}{69}$ = 1.986 bbls./day/# drop BHP

8/64" ok - Oil Production - 81 bbls/day

Gas Production - 94,000 cu.ft./day

Drop in BHP 47#

GOR.- $\frac{94000}{81}$ = 1160 cu.ft./bbl.

P.I.= $\frac{81}{47}$ = 1.723 bbls/day/# drop BHP

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "B" #4

2-22-51 2-24-51

GAS CALCULATIONS

2" OWT 3/8" Plate 13.2 psia = Atm. Press.

$Q = C \times P_f \times F_{tf} \times F_g$

12/64" ck P = 60#, T = 60°, Sp. Gr. .8

Q = 3.142 x 73.2 x 1.000 x .866

Q = 199 MCF/day

10/64" ck P = 40#, T = 60°, Sp. Gr. = .8

Q = 3.142 x 53.2 x 1.000 x .866

Q = 145 MCF/day

8/64" ck P= 21.5#, T = 60°, Sp. Gr. = .8

Q = 3.142 x 34.7 x 1,000 x .866

Q = 94 MCF/day

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "S" #4

1" 5.41 Bbls.

| Date | Time | Elaps. Time | Gages | Oil/in. | Oil Bbls/per. | Oil Bbls/hr. | Oil Bbls/day | Ck Size |
|---|---|---|---|---|---|---|---|---|
| 2-22-51 | 19:35 | | | | | | | 12/64" |
| | 21:00 | | 12' 1 3/8 | 1 3/8 | 7.44 | 7.44 | 178.56 | |
| | 22:00 | 1 | 12' 2 3/4 | 1 3/8 | 7.44 | 7.44 | 178.56 | |
| | 23:00 | 1 | 12' 4 1/8 | 1 3/8 | 7.44 | 7.44 | 178.56 | |
| | 24:00 | 1 | 12' 5 1/2 | 1 3/8 | 7.44 | 7.44 | 178.56 | |
| 2-23-51 | 01:00 | 1 | 12' 6 7/8 | 1 3/8 | 7.44 | 7.44 | 178.56 | |
| | 02:00 | 1 | 12' 8 5/8 | 1 3/4 | 9.47 | 9.47 | 227.28 | |
| | 03:00 | 1 | 12'10 3/8 | 1 3/4 | 9.47 | 9.47 | 227.28 | |
| | 04:00 | 1 | 13' 1/8 | 1 3/4 | 9.47 | 9.47 | 227.28 | |
| | 05:00 | 1 | 13' 1 5/8 | 1 1/2 | 8.115 | 8.115 | 194.76 | |
| | 06:00 | 1 | 13' 3 1/8 | 1 1/2 | 8.115 | 8.115 | 194.76 | |
| | 07:00 | 1 | 13' 4 5/8 | 1 1/2 | 8.115 | 8.115 | 194.76 | |

Average last 3 hrs production 195 bbls./day

| | | TP | CP |
|---|---|---|---|
| 2-22-51 | 21:10 | 773 | 0 |
| | 22:10 | 754 | 0 |
| | 23:10 | 766 | 0 |
| | 24:10 | 764 | 0 |
| 2-23-51 | 01:10 | 760 | 0 |
| | 02:10 | 755 | 0 |
| | 03:10 | 760 | 0 |
| | 04:10 | 755 | 0 |
| | 05:10 | 770 | 0 |
| | 06:10 | 755 | 0 |

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "S" #4

| Date | Time | Klaps. Time | Gages | Oil/in. | Oil Bbls/per. | Oil Bbls/hr. | Oil Bbls/day | Ck Size |
|---|---|---|---|---|---|---|---|---|
| 2-23-51 | 07:55 | | | | | | | 10/64" |
| | 08:00 | | 13' 6 1/4 | | | | | |
| | 09:00 | 1 | 13' 6 1/2 | 1/4 | 1.36 | 1.36 | 32.41 | |
| | 10:00 | 1 | 13' 8 1/2 | | | | | |
| | 11:00 | 1 | 13' 9 | | | | | |
| | 12:00 | 1 | 13' 10 | 1 | 5.41 | 5.41 | 129.84 | |
| | 13:00 | 1 | 13' 11 1/8 | 1 1/8 | 6.09 | 6.09 | 146.16 | |
| | 14:00 | 1 | 14' 0 1/8 | 1 | 5.41 | 5.41 | 129.84 | |
| | 15:00 | 1 | 14' 1 1/4 | 1 1/8 | 6.09 | 6.09 | 146.16 | |
| | 16:00 | 1 | 14' 2 1/4 | 1 | 5.41 | 5.41 | 129.84 | |
| | 17:00 | 1 | 14' 3 3/8 | 1 1/8 | 6.09 | 6.09 | 146.16 | |
| | 18:00 | 1 | 14' 4 3/8 | 1 | 5.41 | 5.41 | 129.84 | |
| | | | Average last seven hrs. | | | | 137 Bbls./day | |

| | | TP | CB |
|---|---|---|---|
| 2-23-51 | 08:00 | 760 | 0 |
| | 09:10 | 7 8 5 | 0 |
| | 11:10 | 720 | 0 |
| | 12:10 | 720 | 0 |
| | 13:10 | 725 | 0 |
| | 14:10 | 720 | 0 |
| | 15:10 | 720 | 0 |
| | 16:10 | 740 | 0 |
| | 17:10 | 755 | 0 |

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBARGER FIELD

TIDE WATER STATE "S" #4

OIL GAGES

| Date | Time | Elaps. Tm. | Gages | Oil/in. | Oil Bls/per. | Oil Bbls./hr. | Oil Bbls./day | Ok Size |
|---|---|---|---|---|---|---|---|---|
| 2-23-51 | 18:25 | | | | | | | |
| | 18:30 | | 14' 5 1/2 | | | | | |
| | 20:30 | 2 | 14' 6 1/2 | 1" | 5.41 | 2.70 | 64.80 | |
| | 21:30 | 1 | 14' 7 | 1/2 | 2.70 | 2.70 | 64.80 | |
| | 23:30 | 2 | 14' 8 1/4 | 1 1/4 | 6.76 | 3.38 | 81.12 | |
| 2-24-51 | 00:30 | 1 | 14' 8 1/8 | 5/8 | 3.38 | 3.38 | 81.12 | |
| | 01:30 | 1 | 14' 9 1/2 | 5/8 | 3.38 | 3.38 | 81.12 | |
| | 02:30 | 1 | 14'10 1/8 | 5/8 | 3.38 | 3.38 | 81.12 | |
| | 03:30 | 1 | 14'10 3/4 | 5/8 | 3.38 | 3.38 | 81.12 | |

Average Production last 6 hrs. 81.12 bbls/day

| | | TP | CP |
|---|---|---|---|
| 2-23-51 | 18:40 | 740 | 0 |
| | 20:40 | 775 | 0 |
| | 21:40 | 760 | 0 |
| | 22:40 | 710 | 0 |
| | 23:40 | 695 | 0 |
| 2-24-51 | 00:40 | 690 | 0 |
| | 01:40 | 690 | 0 |
| | 02:40 | 690 | 0 |

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "S" #4

| Date | Status | Serv. Time | Elapse. Time Hrs. | Min. | Heise TP | OP | BHP 7859 | PSIG @ -4300 |
|---|---|---|---|---|---|---|---|---|
| 2-20-51 | Shut in | 16:15 | 0 | 00 | | | | |
| 2-22-51 | 1st static | 17:39 | 49 | 24 | 890 | Packer | 2730 | 2699 |
| 2-22-51 | 2nd static | 19:21 | 51 | 06 | 883 | " | 2736 | 2706 |
| 2-22-51 | Opened 12/64"ok | 19:35 | 0 | 00 | | | | |
| | Flowing 12/64"ok | Drawdown | see detail sheet Page 9 | | | | | |
| | 1st flow 12/64ok | 04:16 | 8 | 41 | 710 | Packer | 2656 | 2626 |
| | 2nd flow 12/64ok | 07:37 | 12 | 20 | 755 | " | 2649 | 2619 |
| | Opened 10/64" ok | 07:55 | 0 | 00 | | | | |
| | Flowing 10/64"ok | Buildup | see detail sheet Page 12 | | | | | |
| | 1st flow 10/64"ok | 15:15 | 7 | 20 | 740 | Packer | 2672 | 2642 |
| | 2nd flow 10/64"ok | 18:05 | 10 | 10 | 755 | " | 2667 | 2637 |
| | Opened 8/64" ok | 18:25 | 0 | 00 | | | | |
| | Flowing 8/64" ok | Buildup | see detail sheet Page 15 | | | | | |
| | 1st Flow 8/64"ok | 02:45 | 8 | 20 | 690 | Packer | 2689 | 2659 |

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512 Leonhardt Bldg.
Phone 58-4915

# SUBSURFACE ENGINEERING COMPANY

production engineering services

Post Office Box 1827 TULSA Phone 54-5819
PREMONT, TEXAS Phone 3101 MIDLAND, TEXAS Phone 3599
SNYDER, TEXAS Phone 1457

HOUSTON
1307 Bell
Phone P-2429

Field Brunson Ellenberger Invoice No. M-2-223

Company Tide Water Associated Oil Company

Lease Tide Water State "S" Well No. 4

Date 2-22-51 Time 17:39 Status of Well 1st static test

Pay Ellenberger Top 7683 Bottom T.D. 7895 Datum -4300

Tubing 2 3/8" OD Depth 7870 B.H.C. Plug or Pin Packer

Casing 5 1/2" Depth 7895 Perforations 7800-25 Liner Tree Top 2" EUE

| Depth Feet | Pressure lbs. sq. in. | Pressure Δ | Gradient lbs./ft. |
|---|---|---|---|
| 24 | 890 | | |
| 2004 | 959 | 69 | .035 |
| 4004 | 1585 | 626 | .313 |
| 6004 | 2190 | 605 | .302 |
| 7459 | 2606 | 416 | .286 |
| 7659 | 2668 | 62 | .310 |
| 7859 | 2730 | 62 | .310 |
| - 34 | - 11 | | |
| 7825 | 2719 | Bottom of perf | .310 |
| - 66 | - 20 | | |
| 7759 | 2699 | Datum | .300 |
| -4300 | 2699 | " | .300 |

| | |
|---|---|
| Casing Press. | Packer |
| Tubing Press. | 890 DWT |
| Oil Level | 2004 |
| Water Level | none |
| Hours—Shut In | 49:20 Flowing |
| Temp. @ | 7859' 116° |
| Elevation—D.F. | 3459 Ground 3449 |
| Last Test Date | First Test |
| Press. Last Test | |
| B.H.P. Change | |
| Loss/Day | |
| Choke Size | 12/64" |
| Oil Bbls./day | |
| Water Bbls./day | |
| Total Bbls./day | |
| Orifice and Line | |
| Static and Differential | |
| Gas Sp. Gr. | Tf |
| Cu. ft./day | |
| GOR | |
| GFR | |

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production

Present Cumulative Production

Production Between Tests

Instrument Amerada Number 5404 B Recovery Factor Bbls./pound Loss

Run By Tefteller Calibration No. M-55 B Calculated By L. Picard

Calculations and Remarks: Assumed reservoir gradient .300

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Phone P-2429

Field Brunson Ellenberger Invoice No. M-2-223

Company Tide Water Associated Oil Company

Lease Tide Water State "S" Well No. 4

Date 2-22-51 Time 19:21 Status of Well 2nd Static

Pay Ellenberger Top 7683 Bottom 78 T.D. 7895 Datum -4300

Tubing 2 3/8" OD Depth 7870 B.H.C. Plug or Pin Packer

Casing 5 1/2" Depth 7895 Perforations 7800-25 Liner Tree Top 2" EUE

| Depth Feet | Pressure lbs. sq. in. | Pressure Δ | Gradient lbs./ft. |
|---|---|---|---|
| 24 | 883 | | |
| 2004 | 976 | 93 | .047 |
| 4004 | 1604 | 628 | .314 |
| 6004 | 2191 | 587 | .293 |
| 7459 | 2616 | 425 | .292 |
| 7659 | 2676 | 60 | .300 |
| 7859 | 2736 | 60 | .300 |
| -100 | - 30 | | |
| 7759 | 2706 | Datum | .300 |
| -4300 | 2706 | " | .300 |

| | |
|---|---|
| Casing Press. | Packer |
| Tubing Press. | 883 DWT |
| Oil Level | 1887 |
| Water Level | none |
| Hours—Shut In | 51:20 Flowing |
| Temp. @ | 7859' 116° |
| Elevation—D.F. | 3459 Ground 3449 |
| Last Test Date | 1-2?-51 |
| Press. Last Test | 2699# |
| B.H.P. Change | 8# gain |
| Loss/Day | |
| Choke Size | |
| Oil Bbls./day | |
| Water Bbls./day | |
| Total Bbls./day | |
| Orifice and Line | |
| Static and Differential | |
| Gas Sp. Gr. | Tf |
| Cu. ft./day | |
| GOR | |
| GFR | |

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

| | | | | | |
|---|---|---|---|---|---|
| Last Cumulative Production | | Present Cumulative Production | | Production Between Tests | |
| Instrument | Amerada | Number | 5404 B | Recovery Factor Bbls./pound Loss | |
| Run By | Teftoller | Calibration No. | M-55 B | Calculated By | L. Picard |

Calculations and Remarks:



FORM R.S. 1 75M 1-51

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "B" #4

| Date | Status | Serv. Time | Elapsed Time Hrs. | Min. | DWT TP | DWT CP Packer | BHP @ 7859 | PSIG @ -4300 |
|---|---|---|---|---|---|---|---|---|
| 2-22-51 | 2nd Static | 19:21 | | | 875 | | 2736 | 2706 |
| | Opened on 12/64ok | 19:35 | 0 | 0 | | | | |
| | Flowing 12/64"ok | 21:10 | 1 | 35 | 773 | | 2683 | 2645 |
| | | 22:10 | 2 | 35 | 754 | | 2675 | 2645 |
| | | 23:10 | 3 | 35 | 766 | | 2668 | 2638 |
| | | 24:10 | 4 | 35 | 764 | | 2665 | 2635 |
| 2-23-51 | | 01:10 | 5 | 35 | 760 | | 2664 | 2634 |
| | | 02:10 | 6 | 35 | 755 | | 2662 | 2632 |
| | | 03:10 | 7 | 35 | 760 | | 2658 | 2628 |
| | | 04:10 | 8 | 35 | 755 | | 2656 | 2626 |
| | 1st flow 12/64"ok | 04:15 | 8 | 40 | 770 | | 2656 | 2626 |

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SNYDER, TEXAS Phone 1457

HOUSTON
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Phone P-2429

Field Brunson Ellenberger Invoice No. M-2-223

Company Tide Water Associated Oil Company

Lease Tide Water State "S" Well No. 4

Date 2-23-51 Time 04:16 Status of Well 1st flow - 12/64" ok

Pay Ellenberger Top 7683 Bottom T.D. 7895 Datum -4300

Tubing 2 3/8" OD Depth 7870 B.H.C. Plug or Pin Packer

Casing 5 1/2" Depth 7895 Perforations 7800-25 Liner Tree Top 2" EUE

| Depth Feet | Pressure lbs. sq. in. | Pressure Δ | Gradient lbs./ft. |
|---|---|---|---|
| 24 | 770 | | |
| 2004 | 1146 | 376 | .190 |
| 4004 | 1609 | 463 | .231 |
| 6004 | 2121 | 512 | .256 |
| 7459 | 2536 | 415 | .285 |
| 7659 | 2596 | 60 | .300 |
| 7859 | 2656 | 60 | .300 |
| -100 | - 30 | | |
| 7759 | 2626 | Datum | .300 |
| -4300 | 2626 | " | .300 |

| | |
|---|---|
| Casing Press. | Packer |
| Tubing Press. | 770 DWT |
| Oil Level | flowing |
| Water Level | flowing |
| Hours—Shut In | Flowing |
| Temp. @ 7859' | 116° |
| Elevation—D.F. 3459 | Ground |
| Last Test Date | |
| Press. Last Test | |
| B.H.P. Change | |
| Loss/Day | |
| Choke Size | 12/64" |
| Oil Bbls./day | |
| Water Bbls./day | |
| Total Bbls./day | |
| Orifice and Line | |
| Static and Differential | |
| Gas Sp. Gr. | Tf |
| Cu. ft./day | |
| GOR | |
| GFR | |

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

Last Cumulative Production | Present Cumulative Production | Production Between Tests

Instrument Amerada Number 5404 B Recovery Factor Bbls./pound Loss

Run By Toftoller Calibration No. M 55 B Calculated By L. Picard

Calculations and Remarks:



FORM R.S. 1 75M 1-51

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Field Brunson Ellenberger Invoice No. M-2-223

Company Tide Water Associated Oil Company

Lease Tide Water State "S" Well No. 4

Date 2-23-51 Time 07:37 Status of Well 2nd flow 12/64" ck

Pay Ellenberger Top 7683 Bottom T.D. 7895 Datum -4300

Tubing 2 3/8" Depth 7870 B.H.C. Plug or Pin Packer

Casing 5½" Depth 7895 Perforations 7800-25 Liner Tree Top 2" EUE

| Depth Feet | Pressure lbs. sq. in. | Pressure Δ | Gradient lbs./ft. |
|---|---|---|---|
| 24 | 755 | | |
| 2004 | 1117 | 362 | .181 |
| 4004 | 1590 | 473 | .236 |
| 6004 | 2125 | 535 | .267 |
| 7459 | 2529 | 404 | .278 |
| 7659 | 2589 | 60 | .300 |
| 7859 | 2649 | 60 | .300 |
| -100 | - 30 | | |
| 7759 | 2619 | Datum | .300 |
| -4300 | 2619 | " | .300 |

| | |
|---|---|
| Casing Press. | Packer |
| Tubing Press. | 755 DWT |
| Oil Level | flowing |
| Water Level | flowing |
| Hours—Shut In | Flowing 12:20 |
| Temp. @ 7859' | 116° |
| Elevation—D.F. | 3459 Ground |
| Last Test Date | 2-2?-51 (static) |
| Press. Last Test | 2706# |
| B.H.P. Change | 87# drop |
| Loss/Day | |
| Choke Size | 12/64" |
| Oil Bbls./day | 195 |
| Water Bbls./day | 0 |
| Total Bbls./day | 195 |
| Orifice and Line | |
| Static and Differential | |
| Gas Sp. Gr. | .800 Tf 60° |
| Cu. ft./day | 199000 |
| GOR | 1021 |
| GFR | |

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP $\frac{195}{87}$ 2.241

| Last Cumulative Production | Present Cumulative Production | Production Between Tests |
|---|---|---|
| Instrument Amerada | Number 5404 B | Recovery Factor Bbls./pound Loss |
| Run By Teftaller | Calibration No. M-55 | Calculated By L. Pigard |

Calculations and Remarks:

FORM R.S. 1 75M 1-51

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "S" #4

1st Flow Test 10/64" ok - Buildup

| Date | Status | Serv. Time | Elapsed Tm. Hrs. | Min. | DWT TP | DWT OP Packer | BHP 7859 | PSIG -4300 |
|---|---|---|---|---|---|---|---|---|
| 2-23-51 | 2nd flow 12/64"ok | 07:45 | | | 755 | | 2649 | 2619 |
| | Opend on 10/64"ok | 07:55 | 0 | 0 | | | | |
| | 1st flow 10/64" ok | 08:00 | 0 | 5 | 760 | | 2617 | 2587 |
| | | 09:10 | 1 | 15 | 785 | | 2671 | 2641 |
| | | 10:10 | 2 | 15 | | | 2677 | 2647 |
| | | 11:10 | 3 | 15 | 720 | | 2671 | 2641 |
| | | 12:10 | 4 | 15 | 720 | | 2673 | 2643 |
| | | 13:10 | 5 | 15 | 725 | | 2675 | 2645 |
| | | 14:10 | 6 | 15 | 720 | | 2673 | 2643 |
| | | 15:10 | 7 | 15 | 720 | | 2672 | 2642 |
| | 1st flow 10/64"ok | 15:15 | 7 | 20 | 740 | | 2672 | 2642 |

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Phone P-2429

Field Brunson Ellenberger Invoice No. M-2-223

Company Tide Water Associated Oil Company

Lease Tide Water State "B" Well No. 4

Date 2-23-51 Time 15:15 Status of Well 2nd Flow Test - 10/64" ck

Pay Ellenberger Top 7683 Bottom T.D. 7895 Datum -4300

Tubing 2 3/8" OD Depth 7870 B.H.C. Plug or Pin Packer

Casing 5 1/2" Depth 7895 Perforations 7800-25 Liner Tree Top 2" EUE

| Depth Feet | Pressure lbs. sq. in. | Pressure Δ | Gradient lbs./ft. |
|---|---|---|---|
| 24 | 740 | | |
| 2004 | 1136 | 396 | .200 |
| 4004 | 1610 | 474 | .237 |
| 6004 | 2136 | 526 | .263 |
| 7459 | 2550 | 414 | .285 |
| 7659 | 2611 | 61 | .305 |
| 7859 | 2672 | 61 | .305 |
| - 34 | - 10 | | |
| 7825 | 2662 | Bottom of perf. | .305 |
| - 66 | - 20 | | |
| 7759 | 2642 | Datum | .300 |
| -4300 | 2642 | " | .300 |

| | |
|---|---|
| Casing Press. | Packer |
| Tubing Press. | 740 |
| Oil Level | flowing |
| Water Level | flowing |
| Hours—Shut In | Flowing |
| Temp. @ 7859' | 116° |
| Elevation—D.F. 3459 | Ground 3449 |
| Last Test Date | 2-23-51 |
| Press. Last Test | |
| B.H.P. Change | |
| Loss/Day | |
| Choke Size | |
| Oil Bbls./day | |
| Water Bbls./day | |
| Total Bbls./day | |
| Orifice and Line | |
| Static and Differential | |
| Gas Sp. Gr. | Tf |
| Cu. ft./day | |
| GOR | |
| GFR | |

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

| | | |
|---|---|---|
| Last Cumulative Production | Present Cumulative Production | Production Between Tests |
| Instrument Amerada | Number 5404 B | Recovery Factor Bbls./pound Loss |
| Run By Teftteller | Calibration No. M 55 B | Calculated By L. Piaard |

Calculations and Remarks:

* Assumed reservoir gradient .300

FORM R.S. I 75M 1-51

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production engineering services

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SNYDER, TEXAS Phone 1457

Field Bruneon Ellenberger Invoice No. M-2-223

Company Tide Water Associated Oil Company

Lease Tide Water State "B" Well No. 4

Date 2-23-51 Time 18:05 Status of Well 2nd flow 10/64" ok

Pay Ellenberger Top 7683 Bottom T.D. 7895 Datum -4300

Tubing 2 3/8" OD Depth 7870 B.H.C. Plug or Pin Packer

Casing 5 1/2" Depth 7895 Perforations 7800-25 Liner Tree Top 2" EUE

| Depth Feet | Pressure lbs. sq. in. | Pressure Δ | Gradient lbs./ft. |
|---|---|---|---|
| | 755 | | |
| 24 | 1140 | 385 | .194 |
| 2004 | 1590 | 450 | .225 |
| 4004 | 2140 | 550 | .275 |
| 6004 | 2545 | 405 | .278 |
| 7459 | 2606 | 61 | .305 |
| 7659 | 2667 | 61 | .305 |
| 7859 | - 10 | | |
| - 34 | 2657 | Bottom of perf. | .305 |
| 7825 | - 20 | | |
| - 66 | 2637 | Datum | .300 |
| 7759 | 2637 | " | .300 |
| -4300 | | | |

| | |
|---|---|
| Casing Press. | Packer |
| Tubing Press. | 755 DWT |
| Oil Level | flowing |
| Water Level | flowing |
| Hours—Shut In | Flowing 10:10 |
| Temp. @ 7859' | 116 |
| Elevation—D.F. 3459 | Ground 3449 |
| Last Test Date | 2-22-51 (static) |
| Press. Last Test | 2706# |
| B.H.P. Change | 69# drop |
| Loss/Day | |
| Choke Size | 10/64 |
| Oil Bbls./day | 137 |
| Water Bbls./day | 0 |
| Total Bbls./day | 137 |
| Orifice and Line | |
| Static and Differential | |
| Gas Sp. Gr. | .800 Tf 60° |
| Cu. ft./day | 145,000 |
| GOR | 1058 |
| GFR | |

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP 137/69 = 1.986

| | | | |
|---|---|---|---|
| Last Cumulative Production | Present Cumulative Production | | Production Between Tests |
| Instrument Amerada | Number 5404 B | | Recovery Factor Bbls./pound Loss |
| Run By Tertoller | Calibration No. K 55 B | | Calculated By L. Picard |

Calculations and Remarks:

Assumed reservoir gradient .300



FORM R.S. 1 75M 1-51

TIDE WATER ASSOCIATED OIL COMPANY

BRUNSON ELLENBERGER FIELD

TIDE WATER STATE "B" #4

Flowing 8/64" ok - Buildup

| Date | Status | Serv. Time | Elapsed Tm. Hrs. | Min. | Heise TP | CP | Packer BHP @ 7859 | PSIG -4300 |
|---|---|---|---|---|---|---|---|---|
| | | | | | 755 | | 2667 | 2637 |
| 2-23-51 | 3rd Flow 10/64" ok | 18:13 | | | | | | |
| | | 18:25 | 0 | 0 | 740 | | 2677 | 2647 |
| | | 18:40 | 0 | 15 | | | | |
| | | 19:40 | 1 | 15 | 775 | | 2681 | 2651 |
| | | 20:40 | 2 | 15 | 760 | | 2681 | 2651 |
| | | 21:40 | 3 | 15 | 710 | | 2681 | 2651 |
| | | 22:40 | 4 | 15 | 695 | | 2683 | 2653 |
| | | 23:40 | 5 | 15 | 690 | | 2685 | 2655 |
| | | 00:40 | 6 | 15 | 690 | | 2687 | 2657 |
| | | 01:40 | 7 | 15 | 690 | | 2689 | 2659 |
| 2-24-51 | | 02:40 | 8 | 15 | 690 | | 2689 | 2659 |
| | 1st flow 8/64" ok | 02:45 | 8 | 20 | | | | |

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SNYDER, TEXAS Phone 1457

HOUSTON
1307 Bell
Phone P-2429

Field Brunson Ellenberger Invoice No. M-2-223

Company Tide Water Associated Oil Company

Lease Tide Water State "B" Well No. 4

Date 2-24-51 Time 02:45 Status of Well 1st Flow 8/64" ck

Pay Ellenberger Top 7683 Bottom T.D. 7895 Datum -4300

Tubing 2 3/8" OD Depth 7870 B.H.C. Plug or Pin Packer

Casing 5 1/2" Depth 7895 Perforations 7800-25 Liner Tree Top 2" SUE

| Depth Feet | Pressure lbs. sq. in. | Pressure Δ | Gradient lbs./ft. |
|---|---|---|---|
| 24 | 690 | | |
| 2004 | 1109 | 419 | .212 |
| 4004 | 1606 | 497 | .248 |
| 6004 | 2152 | 546 | .273 |
| 7459 | 2570 | 418 | .287 |
| 7659 | 2629 | 59 | .295 |
| 7859 | 2689 | 60 | .300 |
| -100 | - 30 | | |
| 7759 | 2659 | Datum | .300 |
| -4300 | 2659 | " | .300 |

| | |
|---|---|
| Casing Press. | Packer |
| Tubing Press. | 690 DKT |
| Oil Level | flowing |
| Water Level | flowing |
| Hours—Shut In | Flowing |
| Temp. @ 7859' | 116° |
| Elevation—D.F. 3459 | Ground 3449 |
| Last Test Date | 2-22-51 (static) |
| Press. Last Test | 2706 # |
| B.H.P. Change | 47 # drop |
| Loss/Day | |
| Choke Size | 8/64" |
| Oil Bbls./day | 81 |
| Water Bbls./day | 0 |
| Total Bbls./day | 81 |
| Orifice and Line | |
| Static and Differential | |
| Gas Sp. Gr. .800 | Tf 60°F |
| Cu. ft./day | 94,000 |
| GOR | 1160 |
| GFR | |

PRODUCTIVITY INDEX—BBLS./DAY/LBS. DROP

| | | |
|---|---|---|
| Last Cumulative Production | Present Cumulative Production | Production Between Tests |
| Instrument Amerada | Number 5404 B | Recovery Factor Bbls./pound Loss |
| Run By Tafteller | Calibration No. M 55 B | Calculated By L. Picard |

Calculations and Remarks:

FORM R.S. 1 75M 1-51

DROP IN B.H.P. — BOTTOM HOLE PRESSURE — OIL PRODUCTION — GAS OIL RATIO — PRODUCTIVITY

OIL PRODUCTION BBLS/DAY

200
150
100
50
0

87 — 2619
690 — 2637
470 — 2659
2706

12/64" ck 195
10/64" ck 137
8/64" ck 81

1021
1058
1160

2241
1985
1723

50 100 2600 2650 2700

POUNDS PER SQ IN GAGE

BBLS/DAY

1000 1100 1200 1.5 2.0

CU FT / BBL. BBLS/DAY/# D

PRODUCTION CURVES
TIDEWATER ASSOCIATED OIL CO
BRUNSON ELLENBERGER
TIDEWATER STATE "S" NO 4
2-22-51 2-24-51

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF HEARING BEFORE
THE OIL CONSERVATION COMMISSION
OF NEW MEXICO FOR THE PURPOSE OF
CONSIDERING

CASE No. 260
ORDER No. R-63

IN THE MATTER OF THE APPLICATION
OF TIDE WATER ASSOCIATED OIL COMPANY
FOR AUTHORITY TO DUALLY COMPLETE
STATE S No. 4, LOCATED IN THE NE/4 NW/4
SECTION 15, T. 21 S, R. 37 E, LEA COUNTY,
N. M., FOR THE ELLENBURGER AND McKEE
FORMATIONS; OR IN THE ALTERNATIVE TO
AUTHORIZE TRANSFER OF ALLOWABLE OF
STATE S No. 4 TO STATE S No. 3 FOR ELLEN-
BURGER PRODUCTION.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This matter came on regularly for hearing on the 20 day of March 1951 before the Oil Conservation Commission, hereinafter referred to as the "Commission."

IT IS ORDERED that applicant may amend its application, the same to be readvertised at a date set upon filing of amended application.

DONE at Santa Fe, New Mexico, on this 21 day of March 1951.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Edwin L. Mechem
EDWIN L. MECHEM, Chairman

Guy Shepard
GUY SHEPARD, Member

R. R. Spurrier
R. R. SPURRIER, Secretary

## AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Margaret L. Summers
Publisher

Of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not in a supplement thereof for a period of One time weeks.

beginning with the issue dated January 26, 1951

and ending with the issue dated January 26, 1951

Publisher.

Robert L. Summers

Sworn and subscribed to before me this 27 day of January, 1951

Notary Public.

Betty Blair

My commission expires January 25, 1953

(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

## LEGAL NOTICE

Feb. 26, 1951

## NOTICE OF PUBLICATION STATE OF NEW MEXICO OIL CONSERVATION COMMISSION

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder, of the following public hearing to be held March 20, 1951, beginning at 10:00 o'clock a. m. on that day in the City of Santa Fe, New Mexico, in the Council Chamber of the City Hall.

**STATE OF NEW MEXICO TO:**

All named parties in the following cases and notice to the public:

**Case 260**

In the matter of the application of Tide Water Associated Oil Company for authority to dually complete State S No. 4, located in the NE/4NW/4 section 15, T. 21 S, R. 37 E, Lea County, New Mexico, for the Ellenburger and McKee formations; or in the alternative to authorize transfer of allowable of State S No. 4 to State S No. 3 for Ellenburger production.

**Case 261**

In the matter of the application of Cities Service Oil Company for authority to dually complete State S No. 3, located in the SE/4NW/4 section 15, T. 21 S, R. 37 E, Lea County, New Mexico, in the Ellenburger and McKee formations.

**Case 263**

In the matter of hearing to be held by the Oil Conservation Commission, upon its own motion, for the designation, extension, or deletion of the various pools listed and described as follows:

Extend the House pool:
T. 20 S, R. 38 E
S/2 section 11
NE/4 and S/2 section 12
N/2 section 13
N/2 section 14

T. 20 S, R. 39 E
W/2 section 7
NW/4 section 18

Extend the Bough pool:
T. 9 S, R. 36 E
S/2 section 7
All section 18

Extend the Vacuum pool:
T. 18 S, R. 34 E
All section 5

Extend the Bagley Siluro-Devonian pool:
T. 11 S, R. 33 E
SE/4 section 33
SW/4 section 34

T. 12 S, R. 33 E
W/2 section 3
E/2 section 4

Create the following pools:
Twin Lakes pool
T. 8 S, R. 28 E
SE/4 section 35
S/2 section 36

T. 9 S, R. 28 E
All section 1
E/2 section 2

Fowler-Blinebry pool
T. 24 S, R. 37 E
W/2 section 15
All section 16
N/2 section 21
NW/4 section 22

Gladiola-Abo pool
T. 12 S, R. 37 E
All section 13
E/2 section 14
NE/4 section 23
N/2 section 24

Levick pool
T. 8 S, R. 27 E
SW/4 section 5
S/2 section 6
All section 7
W/2 section 8

Keohane pool
T. 9 S, R. 29 E
SE/4 section 1
E/2 section 12

T. 9 S, R. 30 E
S/2 section 6
All section 7

GIVEN under the seal of the Oil Conservation Commission of New Mexico, at Santa Fe, New Mexico, on February 21, 1951.

STATE OF NEW MEXICO
OIL CONSERVATION
COMMISSION

SEAL

R. R. SPURRIER
Secretary

STATE OF NEW MEXICO
OFFICE OF STATE GEOLOGIST
SANTA FE, NEW MEXICO

March 22, 1951

C
O
P
Y

Mr. J. B. Holloway
Tide Water Associated Oil Company
Houston, Texas

RE: Case No. 260

Dear Mr. Holloway:

We are enclosing signed copy of Order No. R-63 in the matter of your application for authority to dually complete your State S No. 4, located in 15-21S-37E.

Very truly yours,

bpw

Secretary and Director

BEFORE THE OIL CONSERVATION COMMISSION
OF THE
STATE OF NEW MEXICO

APPLICATION FOR APPROVAL OF DUAL COMPLETION IN THE BRUNSON-HARE FIELDS OR, IN THE ALTERNATIVE, APPROVAL OF TRANSFER OF ALLOWABLE TO WELLS ON THE SAME LEASE

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Comes now Tide Water Associated Oil Company, a Delaware corporation, with district office located at Hobbs, New Mexico, and hereby makes application for permission to dually complete its State "S" No. 4 well located in the NE/4 NW/4 Section 15, T-21-S, R-37-E.

(1) That the applicant is the owner of that certain oil and gas lease from the State of New Mexico bearing No. B-9188, embracing all of the N/2 N/2 of Section 15, and the SE/4 SE/4 Section 10, 21-S, 37-E. Said lease provides for 1/8th royalty payable to the State of New Mexico; all of the remainder of oil and gas produced is retained by the applicant.

(2) That applicant, on November 22, 1950, did complete State "S" well No. 3 at a location in the center of NW/4 of NE/4 of Section 15, which well flowing through perforations opposite the Ellenberger formation from 7550 to 7612 feet produced on initial potential test 162 barrels of 42 gravity oil in 12 hours on 5/16" choke with gas-oil ratio 740:1 and tubing pressure 1050 p.s.i.

(3) That on January 19, 1951, applicant completed its State "S" well No. 4 at a location 100 feet east of center of the NE/4 of NW/4 Section 15, which well flowing through perforations opposite the Ellenberger formation from 7800 to 7825 feet produced 96.37 barrels of 42 gravity oil in 4 hours on 1/4" choke, with gas-oil ratio 1131:1, tubing pressure 580 p.s.i.

(4) That State "S" well No. 4 penetrated the McKee sand in the Simpson zone, which sand had an overall thickness of approximately 150 feet. That a one hour drill stem test was made in the McKee sand from 7422 to 7434, during which time the well produced 50 barrels of 53.5 gravity oil, with flowing pressure ranging from 470 to 970 p.s.i.

(5) Applicant further alleges that in drilling these wells, approximately 125 tons of steel is required to properly case and equip each well. Steel is now in scarce supply and critically needed in our Country's defense preparations. The dual completion requested will assist materially in conserving this important commodity.

(6) That it has been frequently demonstrated that mechanical packers and other devices are available to effectively separate two productive zones in one well bore, in such manner that one zone is produced through the tubing and the other zone is produced through the annulus between the tubing and casing.

(7) That in the event the Commission is not disposed to grant authority to dually complete State "S" No. 4 as requested, then permission is hereby requested to transfer the allowable now assigned to State "S" No. 4, in so far as the Ellenberger production is concerned, to State "S" No. 3 which is now producing from the Ellenberger.

(8) That it has been proven that under certain conditions and circumstances, it is in the interest of conservation to transfer the allowable production from one well to another on the same lease, and applicant respectfully submits the proposition that having established the fact that State "S" No. 4 is productive in the Ellenberger formation and that the NE/4 of the NW/4 is entitled to a proportionate share in allowable production of the Brunson Field, that it would be in the interest of the conservation of steel to transfer such allowable to and permit same to be produced by State "S" Well No. 3. That in so doing, it would enable applicant to recomplete and make readily available the additional amount of oil which would accrue to a McKee sand completion.

(9) Applicant believes and so represents to the Commission that either of the two means suggested to alleviate the further immediate need of steel would be equitable and fair in all respects, and will not in any manner disturb correlative rights or cause reservoir waste.

(10) Your applicant respectfully suggests to the Commission that it take into consideration the state of emergency which now exists in our Government and the urgent demand now being made for the establishment of additional and immediate producible reserves of oil, with the minimum use of steel. To that end it is requested that this application be given favorable consideration.

The following offset operators to applicant's lease have been furnished copies of this application:

Humble Oil & Refining Company, Houston, Texas
Continental Oil Company, Houston, Texas
E. R. Moran, Tulsa, Oklahoma
Shell Oil Company, Midland, Texas
Cities Service Oil Company, Bartlesville, Okla.
Gulf Refining Company, Fort Worth, Texas

Respectfully submitted,

TIDE WATER ASSOCIATED OIL COMPANY

By J. B. Hallaway

Houston, Texas
January 31, 1951

**TIDE WATER ASSOCIATED OIL COMPANY**
MID-CONTINENT DIVISION
MELLIE ESPERSON BLDG. POST OFFICE BOX 1404
HOUSTON 1, TEXAS

January 31, 1951

Graham - Wade #2, Leasing
Case 260

Mr. R. R. Spurrier, Secretary and Director
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Mr. Spurrier:

Please find enclosed duplicate copies of Tide Water Associated Oil Company's application for permission to dually complete its State "S" No. 4 well located in the NE/4 NW/4 Section 15, T-21-S, R-37-E, so as to produce from the Ellenberger in the Brunson Field through the tubing and from the McKee sand, Hare Field, through the annulus between the tubing and casing. We also request that in the event the Commission is not disposed to grant us permission to dually complete the well that we be authorized to transfer the Brunson allowable in well No. 4 to State "S" well No. 3, which is completed in the same pay.

It would be appreciated if you would set this matter for hearing at your earliest convenience.

Yours very truly,

TIDE WATER ASSOCIATED OIL COMPANY

By: J. B. Holloway

JBH/pb
Enc.

Map in Book of Plans
Page 260
261

COUNTY

Hare

BASE AND MERIDIAN

RANGE 37E

RANGE

TWP 21S

TWP