# I N D E X

| WITNESS | DIRECT & REDIRECT | CROSS & RECROSS | EXAM. BY BOARD/STAFF |
|---|---|---|---|
| 1. Herschel E. Lane | 8-18 | -- | 19-22 |
| 2. J. A. Couvillon (Informal statement) | 26-28 | -- | 28-32 |
| 3. Gene Snell (Informal statement) | 50-52 | -- | 52-59 |
| 4. G. D. Simon (Informal statement) | 59-65 | -- | -- |
| 5. Otis Ainsworth (Informal statement) | 71-73 81 | -- | -- |
| 6. Marshall Oglesby (Informal statement) | 72-79 | -- | -- |
| 7. Tom Sylte (Informal statement) | 79-80 | -- | -- |
| 8. E. T. Nichols (Informal statement) | 82-85 | -- | -- |

# E X H I B I T S

| TITLE | DESCRIPTION | OFFR'D | REC'D |
|---|---|---|---|
| Exhibit No. 1 (Herschel E. Lane) | Location plat for AL&TC-Powe Unit 29-6 | 10 | 23 |
| Exhibit No. 2 (Herschel E. Lane) | Portion of dual induction lateral log on AL&TC-Powe Unit 29-6 | 11 | 23 |
| Exhibit No. 3 (Herschel E. Lane) | Schematic drawing of Salt Water Disposal Well No. 2 | 13 | 23 |
| Exhibit No. 1 (Gene Snell) | Plat Map of South Carlton Field | 50 | (not rec'd) |

STATE OIL & GAS BOARD OF ALABAMA

Tuscaloosa, Alabama

June 19, 1970

Testimony and proceedings before the State Oil & Gas Board of Alabama, in the Board Room of the State Oil & Gas Board Building, University Campus, Tuscaloosa, Alabama, in Regular Session, at 10:00 A.M. on Friday, June 19, 1970.

BEFORE:

BOARD MEMBERS

Mr. E. O. Eddins.....Acting Chairman

Mr. Drexel Cook.....Associate Member

Mr. Julian Maddox.....Associate Member

BOARD STAFF

Mr. Philip E. LaMoreaux.....Secretary & Supervisor

Mr. Gene White.....Chief Petroleum Engineer

Mr. Donald B. Moore.....~~Assistant Supervisor~~ Petroleum Geologist

PE 10-7-70

(Reported by Lou M. Chambers)

# A P P E A R A N C E S

| NAME | REPRESENTING |
|---|---|
| 1. H. E. Lane<br>Jackson, Mississippi | Pruet & Hughes Company |
| 2. T. J. Holifield<br>Laurel, Mississippi | Pruet & Hughes Company<br>(Attorney) |
| 3. Jack E. Truitt<br>New Orleans, Louisiana | Getty Oil Company |
| 4. Philip Oramous<br>Birmingham, Alabama | Associated Press |
| 5. J. A. Couvillon<br>Houston, Texas | Falcon Seaboard Drilling Co. |
| 6. Tom Sylte<br>Pensacola, Florida | F. H. Kelton |
| 7. Gene Snell<br>Jackson, Mississippi | Clarkwin Oil Company |
| 8. G. D. Simon<br>Jackson, Michigan | Patrick Petroleum Company |
| 9. X. M. Frascogna<br>Jackson, Mississippi | Patrick Petroleum Company |
| 10. Michael Onderdonk<br>Citronelle, Alabama | Patrick Petroleum Company<br>(Attorney) |
| 11. Michael D. Knight<br>Mobile, Alabama | Otis Ainsworth<br>(Attorney) |
| 12. Otis Ainsworth<br>Laurel, Mississippi | Self |
| 13. E. T. Nichols<br>Monroe, Louisiana | Self |

A P P E A R A N C E S
(Continued)

| NAME | REPRESENTING |
|---|---|
| 14. Marshall Oglesby<br>(Address not listed) | Self |
| 15. James D. Turner<br>Citronelle, Alabama | State Oil & Gas Board |
| 16. George W. Swindel, Jr.<br>Tuscaloosa, Alabama | State Oil & Gas Board |

P R O C E E D I N G S

CHMN. EDDINS: Ladies and gentlemen, we will call the meeting to order. Let's rise for a word of prayer, and I'll ask Mr. Hanby to lead us in prayer.

(A prayer was then offered by Mr. Hanby)

CHMN. EDDINS: Mr. LaMoreaux, has this meeting been properly advertised in accordance with the law, and a copy of the notice of the meeting included in the minutes?

MR. LaMOREAUX: Mr. Chairman, this meeting has been advertised in accordance with the law. The notice appeared in the Birmingham Post Herald, the Alabama Journal, the Mobile Press Register, and in addition, because of the agenda for this meeting, we advertised in the Alabama Legal Advertiser, the Choctaw Advocate, and the Clarke County Democrat.

Now, personal notices of the meeting have been given to the following operators in the Gilbertown Field by registered mail, return receipt requested:

| | |
|---|---|
| Messrs. Otis Ainsworth | Locke Realty Company |
| Frank Kelton, c/o Tom Sylte | Marshall Oglesby |
| Joseph W. Hutchinson, Jr. | E. T. Nichols |
| Arden Anderson | Solatex Petroleum Company |

Return receipts are on file with the Board. Personal notices of this meeting have also been given to the following operators in the

South Carlton Field by registered mail, return receipt requested:

Falcon Seaboard, Inc. Patrick Oil Company

Clarkwin Oil Corporation Houston Oil & Minerals Corp.

And return receipts are on file with the Board. I will transmit a notice of the meeting to the recording secretary, along with the statement relating to the advertisement of the meeting.

NOTICE OF MEETING

"The State Oil and Gas Board will hold its regular monthly meeting on Friday, June 19, 1970, at 10 a.m. in the Board Room of the State Oil and Gas Board Building, University Campus, Tuscaloosa, Alabama, at which time and place the following matters will be considered:

"1. Petition by Pruet & Hughes Company for authority to convert and recomplete the Pruet & Hughes Company, et al, Alco Land and Timber Company, Inc. - Powe Unit 29-6 dry hole to a salt water disposal well in the Turkey Creek Field, Choctaw and Clarke Counties, Alabama.

"2. The State Oil and Gas Board will, on its own motion, consider the matter of salt water disposal in the Gilbertown Field, Choctaw County, Alabama, and following testimony

presented by operators and interested citizens in this field, will take action as it deems necessary in the premises.

"3. The State Oil and Gas Board will, on its own motion, consider the matter of salt water disposal in the South Carlton Field, Clarke and Baldwin Counties, Alabama, and following testimony presented by operators and interested citizens in this field, will take action as it deems necessary in the premises.

"Petitions before the State Oil and Gas Board of Alabama must be represented in person by the petitioner or by his duly authorized agent. In the absence of such representation, the petition before the said Board will be subject to dismissal.

"The Board was established by an act of the Legislature of Alabama in the regular session of 1945, an act that became effective May 22, 1945.

"The public is invited to attend this meeting.

"Philip E. LaMoreaux
Secretary to the Board
State Oil and Gas Supervisor"

CHMN. EDDINS: The first order of business today is:

"Petition by Pruet & Hughes Company for authority to convert and recomplete the Pruet & Hughes Company, et al, Alco Land and Timber Company, Inc. - Powe Unit 29-6 dry hole to a salt water disposal well in the Turkey Creek Field, Choctaw and Clarke Counties, Alabama."

Before we go into that, I'd like to call on our former Chairman to make a statement.

MR. HANBY: Mr. Chairman and gentlemen of the Board, I just felt like that if anybody had a right to do this, I did. I think at this time I would like to introduce the new members of this Board who have just recently been appointed.

I have known Mr. Drexel Cook for many, many years, and I certainly would submit him to the people of Alabama and to this group as a man of very high integrity, character, and a man who I'm sure is going to fulfill the appointed job that he has with great satisfaction to all concerned. Drexel and I served together, I believe, for eight years in the Legislature and I daresay we voted together on just about every issue that came up. He's one man that I seem to always agree with, and I look forward to seeing him serve as a member of this Board with great expectations and satisfaction.

I am not too well acquainted with Mr. Julian Maddox, who is the other member of the Board, but from all reports I have on him, he is

a man also of high caliber and certainly has a wonderful reputation in the community of Luverne, where he is from, and I understand he travels quite extensively on his business enterprises.

It has been a pleasure for me to serve as a member of this Board for I have to count nine years, I believe, six of which I was Chairman, and I want to express to Senator Eddins my deep and abiding appreciation for his cooperation and companionship and to Phil LaMoreaux and to Gene White and to all of the members of the Staff of this Board.

It's been a great pleasure for me to serve, and I've enjoyed it tremendously, and I don't expect to leave here and not return because I'm a lawyer by profession and I certainly expect to appear before this Board on occasion and I'm certainly in hope that my relationship with the Board continues and I know this Board even better as the years go by.

Thank you very much.

(Applause)

CHMN. EDDINS: Mr. Hanby, we'll be delighted to have you appear before us anytime, and we assure you that you'll get the same fair treatment that you've given these good people over the years.

Those representing Pruet & Hughes, will they stand, please?

MR. HOLIFIELD: My name is T. J. Holifield, representing the petitioner. I have one witness here, Mr. Lane.

CHMN. EDDINS: Will you come around, please?

MR. HOLIFIELD: He needs to be sworn.

MR. LaMOREAUX: Would you raise your right hand?

(Witness was then duly sworn by Mr. LaMoreaux)

MR. LaMOREAUX: Let it be stated that the witness was sworn in by the Secretary of the Oil and Gas Board.

MR. HOLIFIELD: What seating arrangement do you desire?

MR. LaMOREAUX: I think probably it'll be best as you've lined up there, you at the end.

HERSCHEL E. LANE

appearing as a witness on behalf of Petitioner, Pruet & Hughes Company, being first duly sworn, testified as follows:

DIRECT EXAMINATION

Questions by Mr. Holifield:

Q State your name, please.

A Herschel Elbert Lane.

Q Where do you live, Mr. Lane?

A Jackson, Mississippi.

Q By whom are you employed?

A Pruet & Hughes Company.

Q What is your profession, Mr. Lane?

A Production manager, petroleum engineer.

Q Would you please state to the Board a brief summary of your

education, training and experience in this field?

A I have a Bachelor of Science degree from Mississippi State College in Mechanical Engineering; also a Master of Science degree with a major in Mechanical Engineering, a minor in Physics. I have 18 years experience as a practicing petroleum engineer; 11 with a major company and 7 with an independent.

CHMN. EDDINS: If we hear no objections, his qualifications will be accepted.

(There were no objections)

MR. HOLIFIELD: Thank you, sir.

(Questions by Mr. Holifield cont'd:)

Q Mr. Lane, I hand you a plat -- here are some plats, you can pass them around.

(Mr. LaMoreaux distributed documents to members of the Board and Staff)

Q And I'll ask you to please identify it, if you will, sir.

A This is the location plat for the Alco Land and Timber - Powe Unit 29-6 Well, Section 29, Township 10 North, Range 2 West, Choctaw County, Alabama. This well was originally drilled by Pruet & Hughes Company -- supposed to make an oil well. It was a dry hole, and we will now call this the Turkey Creek Salt Water Disposal Well No. 2, after approval by the Board.

Q Mr. Lane, was this plat prepared by you or under your direct

supervision and control?

A It was.

MR. HOLIFIELD: Mr. Chairman, if the Board please, we would like to offer this exhibit as Exhibit 1 to the testimony of Mr. Lane and ask that it be marked for identification purposes.

CHMN. EDDINS: It will be so marked.

MR. HOLIFIELD: All right, sir.

(Whereupon, document described as location plat for Alco Land and Timber - Powe Unit 29-6 Well was marked for identification as Exhibit No. 1 to the testimony of Herschel E. Lane)

(Mr. Holifield distributed documents to members of the Board and Staff)

(Questions by Mr. Holifield cont'd:)

Q Mr. Lane, at this time I hand you an instrument marked as a portion of the dual induction log and ask you to please identify it, if you will, please, sir.

A This is the dual induction lateral log done by Schlumberger on the Alco Land and Timber Company - Powe Unit 29-6 Well immediately after reaching its total depth. This particular portion of the log shows the top of the Marine Shale, the top of the Lower Tuscaloosa Formation, and the top of the Lower Cretaceous Formation on this two-inch scale, and it's submitted here for the purpose of identifying and showing the zone that we intend injecting salt

water into, which would be the Lower Tuscaloosa Zone between the intervals of 4700 and 5100 feet.

Q All right, sir. Was this log prepared by you or under your direct supervision and control?

A It was.

MR. HOLIFIELD: Mr. Chairman, if the Board please at this time, we'd like to offer into evidence as Exhibit No. 2 to the testimony of Mr. Lane, this portion of the dual induction lateral log, and ask that it be marked for identification purposes.

CHMN. EDDINS: It will be accepted as such.

MR. HOLIFIELD: All right, sir.

(Whereupon, document described as portion of dual induction lateral log on Alco Land and Timber Company - Powe Unit 29-6 Well was marked for identification as Exhibit No. 2 to the testimony of Herschel E. Lane)

(Questions by Mr. Holifield cont'd:)

Q Mr. Lane, at this time I'll hand you a schematic drawing and ask you to please identify it, if you will, please, sir.

A This is a schematic drawing of the proposed surface and sub-surface installation of the salt water disposal system included in this well, the Salt Water Disposal Well No. 2. On the extreme right side of this schematic drawing is the well itself, the down hole equipment that we have or plan to install. The hole originally

upon drilling it was 9 5/8-inch surface casing set 1808 feet and cemented with 545 sacks of cement as indicated on the drawing, which is below the fresh water contact, fresh water-salt water contact of this hole. Then after reaching TD and it being a dry hole, the Board had previously at another hearing granted permission for Salt Water Disposal Well No. 1 using the same diagram but verbal approval for economics was obtained to go ahead and set the 7-inch casing and not do any further work until the decision of the Board. So 7-inch production casing was then run at that hole 5147 feet with a guide-shoe on the bottom, float collar, and the float collar we used was relatively new. It's one that you're able to expand out for a packer to pack off between the casing and the bore hole and open jets above it which enables us to cement above our float collar and give us some more additional insurance of a good cement job. This was cemented with 300 sacks of Class 8 cement and the well was left with the casing just cemented and we will now, after approval by the Board, go back and run our logs and do our testing to make sure that we do have isolation from any fresh water sands by perforating and swab testing and obtaining samples of the formation and completing this as a disposal well. The left hand side of your drawing which shows the tank batteries that are presently -- I mean, the separate heater-treaters that are presently used, it does not show the tank battery but they

appear adjacent to it and show our salt water disposal accumulator or tank and our injection pump that the injection pump will be installed as soon as we see that we need to put our well under pressure rather than under a vacuum. We have a 2 7/8-inch steel disposal line running from the storage tank to the disposal well and by changing this location, we have shortened this steel line considerably, roughly probably half a mile. It's not shown on this drawing but I believe it's included in the order that on completion of this project, safety devices, as far as if the line should break or should rupture, it would automatically shut the system down and close it in in order to prevent surface pollution as much as possible.

Q Mr. Lane, was this exhibit prepared by you or under your direct supervision and control?

A It was.

MR. HOLIFIELD: Mr. Chairman, if the Board please, we'd like to offer into evidence as Exhibit 3 to the testimony of Mr. Lane, this schematic drawing and ask that it be marked for identification purposes.

CHMN. EDDINS: Let it be marked for identification purposes as Exhibit No. 3 to the testimony of Mr. Herschel Lane.

(Whereupon, document described as schematic drawing of proposed surface and sub-surface installation of salt water disposal system in

Salt Water Disposal Well No. 2 was marked for identification as Exhibit No. 3 to the testimony of Herschel E. Lane)

(Questions by Mr. Holifield cont'd:)

Q Mr. Lane, I would like for you to explain in very simple terms where a layman like me can understand it, how salt water disposal well works, what's the reason for it. In other words, it begins at where the oil wells produce oil and they produce some salt water and this is the disposal of it. In other words, where does the salt water go from the time it leaves a producing well?

A Well, from the time it is produced in the producing well, as the well's life increases, in practically all cases it will eventually produce some salt water, and in this specific case we have one over there that we are preparing to put on artificial lift and as soon as we do, we know that it will produce salt water because that's what kills a well, it's logged up, but you get water and oil together and as it goes through your separating surface facilities or heater-treater, you will separate that water out. The water being high in chloride or sodium chloride content, it would contaminate your fresh water streams or even your fresh water source underground if you inject it in a very shallow depth, and this volume of water can be quite large. In this particular field, we probably don't anticipate it ever getting over about

1500 barrels a day, but even 100 barrels a day, as far as pollution goes, could create this problem. The idea of injection here is that we're injecting back at a depth back into a sand that is a salt water sand. We are not contaminating. We are adding to salt water that is already there, and the main problem here is to be sure that you have just completely isolated or cased off so that it cannot contaminate your shallow surface fresh water strata or streams either.

MR. WHITE: Mr. Lane, excuse me just a minute. This is a diagram of a disposal well. If you would, just point out the mechanics of the salt water disposal.

Q (Holifield) Will you stand up there, please?

A All right. I might say this is a very good diagram. As you -- regardless of the depth that the water enters this pipe and traveling by your arrows down to the perforated interval and going out into your permeable section, this would be already saturated with salt water or salt water sand in this area.

Q In this instance, it's the Lower Tuscaloosa?

A The Lower Tuscaloosa Formation, which is not productive of oil in that particular field. This impermeable strata below and above would isolate this from migrating up or down outside the pipe with your cement bond between the casing and your impermeable strata affected. Now, to make sure this cement bond is effective, what we

propose is to perforate and swab test. That is, by mechanical means, empty this tubing of any fluid and draw, as if you were drawing by hypodermic needle, draw fluids within this formation we're going to inject into back out so we can analyze this sample fluid, and with simplicity, let me say that we find this to be on the order of 50,000 parts per million chlorides whereas fresh water would have to be in the order of -- someone may correct me on this -- I would say 10,000 or 15 or possibly 20,000 parts per million even for industrial purposes. Then if this is very salty, you know you're not pulling this fresh water or this transitional water above, you know that your cement job has really got you sealed off and you're not going to leak. By knowing this, you feel that if you inject your water into this sand, then it can't migrate up. We test it and see that it can't go from one strata to the other. It's not always necessary to force this water down by pressure, and salt water is heavy, in the 9 to 10-pound per gallon range, and this weight itself would create a vacuum due to hydrostatic heads, and we hope that for sometime we'll be able to inject this water in a vacuum, the weight will form a suction or vacuum. However, if this becomes full or if the perforation becomes clogged, you just put a pump on there and go to some 2 or 300 pounds of pressure to inject it.

Q Mr. Lane, you testified earlier I believe that the fresh water sands

are at a depth of approximately 1700 feet there and that your outside casing, surface casing is down to below a depth of 1800 feet or 1808 feet. Therefore, it would be guarded against that no salt water going down the pipe would ever get to or be commingled with the fresh water sands?

A That's right. By me using the term here, that's double insurance. One, by your surface casing being cemented and sealing the fresh water above it and two, by your production casing being cemented with seven inches. So you've got a double shot, to look at it that way, double insurance.

Q Well, let me ask you this. In your opinion, is this the best way and the most feasible way to dispose of salt water or waste water?

A Yes, it is.

Q All right, sir. In your opinion, with the well that you have today and in the procedure that you have suggested to this Board, will it prevent waste?

A Yes, it will prevent waste.

Q Will it protect the co-equal and correlative rights of all parties in interest?

A Yes, it will.

Q And I believe you've already testified that you have certain safety devices to prevent any error -- or automatic shut-offs,

shut-off equipment to prevent anything from -- any surface damage in case something should go wrong?

A For protection against that, yes, to prevent it.

MR. HOLIFIELD: All right. Mr. Chairman, at this time we'd like to tender the witness to the Board and the Staff for any questions they may have.

CHMN. EDDINS: Before we start this, I would like to ask if there's anyone in the room that objects to this well, if they're in opposition to it, making a disposal well?

(No response)

CHMN. EDDINS: There's no one in objection. Mr. LaMoreaux, have you any questions of this witness?

MR. LaMOREAUX: Mr. Holifield, what is your desire with regard to the earlier petition before the Board on the Unit 29-16 that we have testimony on at the last meeting?

MR. HOLIFIELD: It has been approved and they wish to...

MR. LaMOREAUX: Would you like to withdraw that?

MR. HOLIFIELD: In other words, we withdraw that petition and that order and we would like to use this one in lieu of it. However, it just shows the two of them have been approved.

MR. LaMOREAUX: It is your desire then to withdraw the former petition for a disposal well using Unit 29-16?

MR. HOLIFIELD: 29-6.

MR. LaMOREAUX: Now, would you like to incorporate into these minutes the testimony on Unit 29-16?

MR. HOLIFIELD: I wouldn't think that it would be necessary, that we've made it so complete on this particular well here, I wouldn't think...

MR. LaMOREAUX: That's perfectly all right.

CHMN. EDDINS: Any questions from the Board or Staff?

EXAMINATION BY THE BOARD AND/OR STAFF

Questions by Mr. LaMoreaux:

Q I would like to know from Mr. Lane the approximate cost to construct and use and put into use this disposal well at Unit 29-6.

A We estimate this particular cost to be between $35 and $40,000.

MR. LaMOREAUX: I would like to also mention for the record and for the Board, particularly as we have two new members, in all the newer fields all of the salt water that is produced from the field, these fields, is disposed of by underground disposal systems such as the one that you heard described this morning. We are not using pit storage and we're not allowing salt water in these new fields like Citronelle and Pollard and the Choctaw Ridge and the other new fields of the State. ~~We're not allowing salt water~~ disposal at the surface. Instead, we're requiring these rather expensive underground disposal systems to handle the salt water, and the Board over the past several years has worked with the oil companies and through a

R 5-14-70

very cooperative relationship, I might say, gradually worked out the handling of salt water and other oil field wastes in Alabama oil fields, and this particular company should be commended because they are now appearing before the Board and asking for a permit to dispose of water underground in advance of the time when they actually are experiencing a salt water disposal problem. They are, in other words, looking to the future to the time when they will be producing salt water along with the oil and are handling it in an acceptable effective manner in accord with the Board's philosophy of pollution control in Alabama oil fields.

I want to commend them for their presentation.

Q Now, Mr. Lane, you mentioned that some samples would be collected from this well, some drill stem samples. Is that correct?

A Fluid samples.

Q Fluid samples?

A Yes, from that formation.

Q I would like to request that you either supply to the Board the analyses of the results from analysis of these samples or a sample of the liquid so that our laboratory could analyze them.

A We intend supplying you with the sample.

Q Very good. One other point that I would like for you to describe for the Board, and that is related to the location of this particular field in a wildlife reserve and also in an area that is

subject to flooding, and explain to them very briefly the safeguards that you have implemented to protect or guard against pollution in this area.

A In each case on each oil well we have built a steel platform around the well and elevated the well head itself some eight feet above ground level. So what we have is what we call a "Christmas Tree" above the water level. Then inside this steel platform, we have built a steel jacket or let us say "cellar," we might call it such, completely around that casing, cemented the bottom so that it would also prevent the overflow of water, minerals. This was in case we had some minute spillage of oil during changing of the chokes, it wouldn't go out on the ground, it would go inside the cellar, and at each well, we then have a pump that is gas operated and a gas line laid back to that well and this pump, in case the fluid should accumulate inside this cellar, well, you can turn it on, it can suck all of the fluid out of the cellar and pump it back up into our flow line going back up to our tank batteries outside the location of the game reserve itself. We have a tank battery located approximately a mile or a mile and a half away from the wells, so that it would be outside the game reserve. Then on each well we have a safety device we call a "Hi-Lo Shut-In Valve." It is a master valve in addition to a manually operated master valve, and this valve can be set so

that it will close the well in completely at whatever predetermined pressures that you will allow on your flow line that's downstream from your choke. So we have these all set and operating so that in case a flow line should break and the pressure drop, it would shut your well in, or in case the flow line should plug due to paraffin or any other problems, it would also shut your well in, and at our tank batteries, if you were to have some malfunction of equipment there so that your pressure would be elevated on your flow line, your well would close in with these automatic valves also. We have all of our overflows at the treaters and tank batteries and separators all piped to one common "slump pit," a small slump pit there, and we can also pick up fluids from that slump pit with a gasoline driven circulating pump that we have and inject it back to our treating facilities to clean it up, and now that we have the disposal well, we'll be able to take the cleaned-up waste salt water and dispose of it permanently down hole.

MR. LaMOREAUX: This is the same kind of device that if some of the companies that have had problems off-shore in the Gulf had installed in their wells, it would have protected against some of the problems that have existed off-shore and the Gulf of Mexico. So we are particularly proud that our companies that are operating in Alabama in flood land areas are putting in these fail-safe devices

to guard against pollution in flooded areas. I have no further comments. Mr. White?

MR. WHITE: No sir.

MR. HOLIFIELD: Mr. Chairman, if the Board please at this time, we would like to offer into evidence Exhibits 1, 2 and 3 to the testimony of Mr. Lane which were previously marked for identification, and we now ask that they be received into evidence.

CHMN. EDDINS: They will be received into evidence.

(Whereupon, documents previously described and marked for identification were received in evidence as Exhibits Nos. 1, 2 and 3 to the testimony of Herschel E. Lane)

CHMN. EDDINS: Mr. LaMoreaux, what is the Staff's recommendation on this?

MR. LaMOREAUX: All the documents for this petition are in and approved, and the Staff recommends positive action on this petition.

CHMN. EDDINS: Do I hear a motion?

MR. COOK: I so move, Mr. Chairman.

MR. MADDOX: I second it.

CHMN. EDDINS: Those in favor, say "aye."

(All Board Members voted "aye")

CHMN. EDDINS: The "ayes" have it. So it will be approved. The next item on the agenda is:

"The State Oil and Gas Board will, on its own motion, consider the matter of salt water disposal in the South Carlton Field, Clarke and Baldwin Counties, Alabama, and following testimony presented by operators and interested citizens in this field, will take action as it deems necessary."

All of those who are interested in the South Carlton Field, I believe you should come forward and take seats up front as near as you can.

MR. LaMOREAUX: Which of those are going to be witnesses? Which of you will appear as witnesses?

CHMN. EDDINS: All of you?

MR. LaMOREAUX: Well, just come forward then.

CHMN. EDDINS: All of you that are going to appear as witnesses, come forward.

MR. SNELL: I guess I'm it.

MR. LaMOREAUX: Will you raise your right hand?

(Messrs. Snell and Couvillon were then duly sworn by Mr. LaMoreaux)

MR. LaMOREAUX: Let the record show that the witnesses were sworn in by the Secretary of the Oil and Gas Board.

CHMN. EDDINS: The order in which we have these listed is

Mr. Otis Ainsworth -- is he present?

MR. AINSWORTH: Yes.

CHMN. EDDINS: Falcon Seaboard, Inc?

MR. COUVILLON: Yes.

CHMN. EDDINS: We'll hear from you first.

MR. LaMOREAUX: Mr. Chairman, to help the Board see what you're hearing testimony on, Gene has put together about a dozen pictures and we'd like to show those real quickly. Just have a chair, and the Board Members might just switch around.

(At this point in the proceedings, a number of slides were shown of the South Carlton Field with comments as to the method of disposal of salt water in this field)

MR. LaMOREAUX: Just as a preliminary now before your testimony, you will notice that the wells and the sites around the wells are quite clean. We would classify this field as being in good shape. They do handle the brine in the South Carlton Field by allowing it to go into pits such as some of those you saw pictures of, and then the brine goes directly from the pits, it's diluted somewhat in the pits with rainwater and flood waters, and then it goes, the brine or this brackish effluent, goes directly to the river where there is a very large volume of fresh water and it is diluted, and this whole system is closely guarded and controlled by the operators involved and by our field staff who visit the field regularly to

see that wastes are not allowed out into the swamp areas and the brine is guided directly to the river.

We do have a problem though with regard to the field in that the amount of salt water produced each year is gradually growing and therefore there is more salt water that has to be handled.

At this time, we've asked the operators to come forth before the Board and give testimony with regard to this situation because of U. S. quality water standards, because of public attitude toward the handling of salt water, oil field waste, as well as other industrial waste, and that's the reason for this, for these statements this morning.

CHMN. EDDINS: Will you state your name, please?

MR. COUVILLON: My name is John Couvillon, and I'm with Falcon Seaboard Drilling Company out of Houston. I've never testified before the Board before. Do you want me to go into background?

CHMN. EDDINS: Yes, I think maybe it would be a good idea.

J. A. COUVILLON

appearing as a witness on behalf of Falcon Seaboard Drilling Company, being first duly sworn, testified as follows:

DIRECT TESTIMONY

Statement by Mr. Couvillon:

MR. COUVILLON: I've got a BS degree in petroleum engineering from LSU. I worked for Standard Oil and Gas Company, which is now

Pan-Am Petroleum Corporation, from 1942 to 1961. I've been with Falcon Seaboard Drilling Company in a production capacity since 1961. I'm in charge of operations in the field.

We took over operations of two wells in this field from Austral Oil Company, which drilled the wells, and we took over these operations November 1st of 1969. Since that time, we've drilled one more well, made a completion in an oil zone, and we now have three wells producing in the field. Two wells that were operated by Austral prior to our taking over are produced, you saw it in the picture there, through hydraulic pumping units, and our one well is complete since we put a pumping unit on it.

We are currently in the process of drilling a fourth well on which we intend to put a pumping unit, and since we took over on November 1st, we continued to use all the facilities that Austral had installed with the exception of adding an additional heater-treater and one 1,000-barrel tank, and they disposed of their water as we're doing now in a salt water pit on the banks of the Alabama River.

We haven't had any problem with overflow except when the water gets up high and we've had the mechanical problems ever since we took over, particularly since the first of the year, we haven't been making as much production of oil, naturally not as much of water, as we hope to eventually get.

That's about the size of our operations over there now. We do anticipate -- we have one well which is making quite a bit of water and we're considering seriously now and very likely will work that particular well over into another zone, which will reduce that water, we hope.

EXAMINATION BY THE BOARD AND/OR STAFF

Questions by Mr. White:

Q What is your production of oil there now, Mr. Couvillon?

A We've averaged since we have these three wells on, it's been very erratic, but with these three wells that have been on for the last five months, we've averaged 1,050 barrels of oil per day at the least for all three wells.

Q Per day?

A No, excuse me -- per month -- 1,050 barrels per month, and based on periodic tests we've taken at that time, our water has been down, and one of our major problems has been the one well that makes the most water, and we average probably, to the best of our knowledge, less than 300 barrels a month. Now, we anticipate, we hope to get this up even -- in fact, we hope we're in that shape now, we'll average in excess of 3,000 barrels a month.

Q Of oil or water?

A Of oil, and based on the recent tests we took on the thing, of course, our water naturally would be up in excess of 1,000 barrels

a month, and of course, with working this well over if we do work it over, then we will work it up to the same zone as the other two wells, we hope to get a lower water production. We hope to get that down some, too.

Q Are there any wells now dry and abandoned in the area which could be used as a salt water disposal well in the field?

A Well, Austral didn't drill any dry holes and we didn't either. Now, there is a dry well in the area, but I don't know what's in the thing. It's been plugged for sometime, is my understanding. I've never really investigated the history of the well, but it's been plugged for quite sometime, I think. I have no idea what shape it's in.

Q Do you know where this well is from your operations?

A No. Well, it's in Section 15. It's not too far from this well we're drilling now. It's in Section 15, 3 North and 2 East. I don't really know the name of it.

Q How far is this well from your present gathering facilities or tank battery facilities?

A Our disposal pit, of course, is near our tank battery. I guess about a half a mile or more, between a half a mile and a mile.

Q Do you have any idea how much it would cost to lay lines and install pumps and that sort of thing for a salt water disposal well if this well can be converted?

A Well, I checked into it and the cost to drill a well in that area, I estimate the cost at about $25,000 to drill and equip a well for salt water disposal purposes. I don't know for sure how deep you would have to go. Do you have in mind this particular well?

Q I was asking you if this well could be converted to a salt water disposal well.

A I would have to investigate that. It wasn't drilled by us, although I believe it is on our lease now.

Q Would it cost substantially less to convert this well?

A It would be less than that, yes.

Q Do you have any idea how much less?

A No, I'd have to work it up. We'd have to go in there and clean the well out. This particular well you're speaking of has been plugged, and I'm sure there are cement plugs in the well. I don't know if any casing has been pulled out of it. We'd have to have a rig go in there and work it over and drill it out. We'd have to be sure it is cemented. If it was not cemented properly, you'd have to perform a series of cement block squeezes which, in the long run, it would probably end up costing more than a new well.

Q Cost more than drilling and equipping?

A Drilling a shallow salt water disposal well, if you had to block squeeze. You're faced with two sets of perforations plus cement and cement squeezing and squeezed tubing. I feel sure that it

would cost more than it would to drill a new well.

Q At your anticipated rate of production, how long would it take to pay out a disposal well?

A A new disposal well?

Q $25,000.

A Well, right now it's not costing us anything. It never would pay out.

Q I mean, how much would it cost if you drilled a disposal well? How long would it take at your present rate of production to pay the well out, a disposal well?

A You mean on the basis of income from the oil?

Q Yes.

A That'd take an awful long time to do, because we're not making money on it, mainly for mechanical reasons, and of course, an asphalt based crude and the market isn't too good, and we've been limited since we've taken over the operation of the thing. Economics have been very poor, and of course, we have considerable acreage in the field and we anticipate drilling some more wells, but right now it's not very good. Of course, eventually if we get -- and very likely another problem that would arise would be -- we've just about reached our limit probably with this one tank battery, so with additional drilling in the field, we'd have to install another tank battery which, as you know yourself,

you've probably been there, you have a problem there in that all the roads have to be elevated some five feet. It's a pretty expensive operation, plus it's all timber, and of course, it's a pretty expensive damage loss involved, and generally it's a pretty expensive operation, plus the fact that it's isolated, oil field services. I would think, in our case particularly, the pay-out would be pretty long.

Q I'll just ask you this, Mr. Couvillon. Have you, since you've received notice of this meeting, been in contact with other operators in the field? Have you discussed the possibilities of perhaps a joint operation, a joint salt water disposal system?

A No, I sure haven't.

CHMN. EDDINS: Are there any other questions?

MR. LaMOREAUX: I have no questions.

CHMN. EDDINS: Thank you, sir.

(Witness was then excused)

CHMN. EDDINS: Next is Clarkwin Oil Corporation.

MR. ONDERDONK: Mr. Chairman, I'd like to introduce myself and also the members of my party. My name is Mike Onderdonk. I practice law in Chatom, Alabama. I live in Citronelle. Of course, I've known about the Board throughout the years and known the fine work they have done in the Citronelle area. I'm personal friends with some of your employees down there. I'd like to introduce Gene Snell. He is

the most versed with regard to the South Carlton Field. Mr. Frascogna, Jackson, Mississippi, and he is a personal representative for Mr. Patrick and Gerry Simon is also with Patrick Petroleum and he is in charge of production.

Members of the Board, may it please you, I'd like to make just a brief statement. Not to risk the possibility of possibly getting off on the wrong foot with the Board, let me say this briefly and in so many words, that we are very ill prepared to be here this morning. We do not exactly know what we must defend, if that is the word for it. We don't come here in a defensive attitude. We come here in an attitude of cooperation with the Board for whatever problem the Board sees existing in the South Carlton Field.

On the other hand, we would like an opportunity to know exactly what problem exists, to specifically define the problem, and then have an opportunity to present whatever available answer to the problem that we have.

We want to cooperate with the Board and will answer any questions that the Board has this morning, but first off, we'd like in the event that the Board does decide to make a decision, to allow us...

CHMN. EDDINS: I'd like to ask Mr. LaMoreaux to discuss that with you.

MR. ONDERDONK: All right.

CHMN. EDDINS: Just have a seat.

MR. LaMOREAUX: Mr. Onderdonk, over the past six to ten years there has been a rising interest in the general public and on the part of those involved in water pollution control activities both at Federal and State level in interest in the area of pollution of all types, industrial, oil fields, and so forth.

There has been a much greater awareness on the part of the public with regard to pollution and environmental problems. You read about pollution of air and water in the newspapers and all the magazines and TV and you hear it on radio and see it on TV.

As a result of this public awareness, the general public is a great deal more concerned and cognizant of problems of pollution of all types, and they're taking a greater interest in this, and in so doing, those different groups are implementing or in-putting their interest into all types of the public aspects of pollution. By that I mean into politics; that influence is felt very strongly in our own State Water Improvement Commission, which is made up of representation of industry and state agencies and municipal government and so forth, and as a result of this awareness, there has been a great deal more pressure on the regulatory agencies, more than ever before, more than you can perhaps realize, a great deal of pressure on the regulatory agencies to put a stop to pollution of all kinds.

This same feeling of awareness you've witnessed in the last

several months as related to activities on campuses all over the nation.

Now, I have pointed out in lectures all over the southeast and in fact, over the eastern half of the United States, at universities and general public before the ~~lectures~~ that some of this pressure has almost reached mass hysteria in its level, but I would point out, as I have in those other talks that there is some justification for the concern on the part of all of these different agencies and people, and it has been our concern over pollution control in the oil fields particularly since 1960 when we first started to make studies in our oil fields and recognized that even in Alabama we had some very serious water pollution problems. We were actually putting water into pits and the companies felt like these pits stored the water and evaporation removed the water from the pits, and we found through technical studies, that were published in Circular 22 of the Geological Survey, quite a comprehensive report on pollution problems in oil fields, we found that instead in some fields salt water was going underground to the ground water table and actually contaminating ground water supplies, and this contamination took place on a large scale.

At Pollard, for example, we stopped pit disposal in Pollard. Now the fresh water is gaining re-access to formerly polluted ground water supplies and we stopped pit disposal in Citronelle and in other

fields.

This is just one example. In the Gilbertown Field prior to ten years ago, there were substantial amounts of salt water that were discharged out in the swamps, ~~and as far as that's concerned,~~ This was true, in two or three of our other fields, and there were large areas where there were tree kills; the same thing took place in parts of Carlton. ~~and~~ These are unsightly things and they are the kind of thing that when shown in a newspaper or publicized, people ~~respond against~~ react and very definitely against.

9-3-70

In fact, I might say that your Secretary of the Oil and Gas Board through a proposed piece of legislation actually could have been removed from the Water Improvement Commission in the last legislative session because of public reaction on pollution aspects in the State.

I have tried to maintain a rather "middle of the road," what I seemed to ~~think was~~ be a logical, objective, reasonable attitude in working with the companies and implementing good pollution control practices, and we have found that the companies, once they understood the problems, were most cooperative, and we have appreciated that cooperation.

But let me assure you that we could continue to dispose of salt water at the surface in creeks and in pits perhaps another few years, but I sincerely believe that if we don't control pollution totally

and adequately in our oil fields, that you may have an Oil and Gas Board that is constituted and located in another place in state government.

You will also have to deal with Federal pollution and control of water quality standards from the Federal government. So I think it's just a matter of time and we will face even more stringent pollution control laws than we have right now, and what we're trying to do in considering Carlton and Gilbertown is recognize the problem, document it, and try to understand the economics, and we understand very well that some of these fields like Gilbertown are stripper fields that the initial pressure is gone, the economics are ~~low or~~ poor because the production of oil is small, the salt water production is high, and we recognize the state that we are in here, as far as production from the field, but we're still trying to have a thorough understanding of just where we stand so that we will know just what we should do about these last two fields in the State that do not totally control or handle its salt water and oil field waste in what we would consider, and which I think, is generally considered an effective and good manner. That's the reason for these hearings.

Now, we have received some substantial complaints on the part of some as to the way that we are presently handling salt water in some of our fields. The Conservation Department, Fish and Wildlife people are concerned. They are most cooperative with us, but they

recognize that there is salt water going in the streams and rivers in two of our fields.

The ~~general~~ fish and wildlife group in the State are quite concerned about pollution of all types, and so there is this pressure or this influence on our thinking.

So I think that ~~we are here~~ at this point in our history of the United States, we're at a crossroads where we must recognize that we must have sources of energy. Our nation demands energy, but at the same time, we've got to protect the environment that we live in ~~at the same time that~~ while we produce that energy. ~~and~~ We must have the cooperation of the companies to work with us in solving these problems.

Now, I've been extremely pleased, we've had a tremendous support on the part of every one of the companies practically operating in this State. They have spent thousands and thousands of dollars doing away with pits down in the Citronelle Field alone.

Bob, how much, if it's for publication, how much money have you spent in the last year or year and a half just covering old pits and putting in an adequate system for handling salt water in much of the Citronelle Field? Incidentally, Bob ~~Curley~~ Kimberlin (phon.) is the present manager of the big unit at Citronelle, Mobil Oil Company.

MR. ~~CURLEY:~~ Kimberlin Including the upgrading of equipment and covering of pits and everything, we've spent something over $200,000 in the

8-24-70

8-24-70

past year.

MR. LaMOREAUX: This will give you an idea of the magnitude of clean-up by this one particular operation. That doesn't count many of the costs of many of the deep disposal wells that were put in prior to the time that they've gone in and literally cleaned up all of those old pits, reclaimed that land where these pits existed, and I could call on other representatives here from Pollard Field and some of the other fields for similar statements, but there's been a substantial clean-up program in this State. In fact, I would say that we were one of the leading states in the country with regard to effective handling of salt water and oil field waste.

We recognize that Gilbertown and Carlton have **serious** economic problems, but we also recognize that we must stay on top of those problems and gradually work toward total remedial action in those fields. Does that answer your question?

MR. ONDERDONK: Mr. LaMoreaux, I sympathize with the Board's position in the area of pollution and I'm very concerned with the problem myself. Being a member of the Alabama Jaycees, we're interested in "Fresh Air, Incorporated" and other areas of pollution. I think everybody is concerned.

But here, though, representing the people that I do and interested in the particular problem before the Board, I'm not interested in pollution as a public problem for society. I'm

interested and we are interested in exactly in what way the particular field involved, which is the South Carlton Field, is polluting, and if it is polluting, we're not aware of it.

Let me say this. If we're polluting fresh water, we'd like to know about where we're polluting fresh water. If we're polluting the river, we're interested in knowing just to what extent we're polluting the river.

Every field, every well is an individual well to be considered by itself and every field is individual. The amount of production of salt water and how it's to be handled, in my opinion, depends on the particular field involved.

I think you pointed out what we want to know first, and not to put the Board on the defensive, is first, what evidence of pollution exists with regard to the South Carlton Field as has been presented to the Board. Then allow us an opportunity to, in cooperation with Dave and the other guys who we all have working out in the field, substantiate this and bring it back before the Board -- economies and other things -- as to how the problem can be best solved with the amount of money available.

You pointed out we have economic problems in this field and other fields. You just can't go out here and overnight spend a great deal of money when we have a possibility of locating other means of disposing of salt water in the field other than salt water

disposal systems or the pit system or what have you.

In other words, what we're saying this morning to the Members of the Board is that we're not aware of any pollution in the South Carlton Field. If pollution exists in the South Carlton Field, we want to know to what extent and what the Board has in mind. If there are any limits of pollution that the Board is agreeable with, we want to know that.

Certainly you can say that a certain amount would not be pollution, whereas it reaches a level where it would be pollution. We want to know what the level is. We want to know what we must defend. That's all we're talking about.

MR. LaMOREAUX: Well, I think that's why the Board issued their statement in the letter of May 29th that I signed as the Secretary, ~~in that~~ we asked you that the matter of salt water disposal in the South Carlton Field will be considered at this meeting. This is the subject. This is why we wanted you here, to discuss that, and we said "Please come prepared to discuss the economics of production, the economics of total sub-surface disposal of salt water, and any other matters that you feel will aid the Board in reaching a decision on the disposal of salt water produced in the South Carlton Field." And that is the direction that the Board would like to take.

Now, if you would like to know the amount of salt water that our records show is being produced in the Carlton Field, we'll be

glad to give you that, and in the pictures and in a statement from the Chief Engineer, we can tell you where that salt water is going, and if you'd like a re-statement of that, I'll be glad to ask Mr. White to make that statement so that we can start from that point then for further discussion.

MR. ONDERDONK: Yes sir.

MR. LaMOREAUX: Gene, would you give us the statement then again as to the total amount of salt water produced and how it's being handled?

MR. WHITE: The field presently produces 80,000 barrels of salt water per month. By various means, the salt water all goes into the Alabama River. It runs into some pits in between. All of the 80,000 barrels of salt water per month goes into the Alabama River.

MR. LaMOREAUX: Could you give us an idea of the concentrations of that salt water? Do you know roughly what it is?

MR. WHITE: It probably would be in excess of 100,000 parts per million.

MR. LaMOREAUX: And the chloride content of the fresh water in the area would be...

MR. WHITE: Four to five parts per million.

MR. LaMOREAUX: Four to five parts per million? So we are actually disposing then of roughly 80,000 barrels of salt water per month either directly into the river or into pits and then into the

river in water in excess of 100,000 parts per million chloride. This is the problem.

Now, we would like to have comments from you with regard to -- just like the preceding witness -- as to the economics of the production or any pertinent points that you would like to make with regard to the handling of salt water in your interests.

MR. COUVILLON: How was that volume determined, 80,000 barrels?

MR. WHITE: It was measured. It's measured periodically. What we get is reports from the operators actually on a periodic basis.

MR. COUVILLON: Monthly reports, regular monthly reports?

MR. WHITE: We make these determinations ourselves, Mr. Couvillon. We measure the water and these particular determinations are made from the operators' reports of water produced and oil produced -- 12,000 barrels of oil per month and some 80,000 barrels of salt water.

MR. MADDOX: Do you have a tolerance that's generally accepted, say, by the Department of Agriculture or Government? What...

MR. LaMOREAUX: Drinking water standards, as far as U. S. Public Health standards, are in the neighborhood of 250 - 300 parts per million. Generally, the ecology of an environment, and again I'm in an area that is hard to define specifically as far as the full influence or effect of salt water on environment, generally anytime that a stream or river begins to build up 1,000 parts per

ecology ?

million or more, you begin to influence the -- for any length of time -- you will influence the environment.

If you impound water of this concentration and it gets off into the swamps, it would kill trees, for example, concentrations of several thousand parts per million or more. So this will give you an idea of the concentrations and their effect on environment.

MR. MADDOX: Does the Pure Food define what is the tolerance or what could be the accepted tolerance?

MR. LaMOREAUX: No. We'd have to present to you the results of research on that subject to give you this kind of information. It is available. Actually, there's information available on the effect of salt water on water environment, stream environment, and there is also information on chemical character of water and it's physiological effect on human beings, and we could present that kind of information.

MR. ONDERDONK: Mr. Chairman, I'd like to direct a question or two to Mr. White for my benefit and perhaps that of the Board. What evidence do you have or what is your idea of the way that this water is getting into the river?

MR. WHITE: Well, from being in the field, Mr. Onderdonk, it's running directly into the river. It's going through these various pits. Either a pipe comes out of one of the pits into the stream, in the river, or it just runs right into the river itself.

MR. ONDERDONK: And there's no question -- you don't also add to that the possibility of seepage? Are you saying that seepage is part of it, too?

MR. WHITE: Certainly, seepage is part of it.

MR. ONDERDONK: Now, you have some proof of the fact then that there is a pipe which leads from those pits into the river itself, is that correct?

MR. WHITE: Not into the river itself. It's a pipe going from one of the pits into the stream. The field is located right on the banks of the Alabama River. If you dispose of salt water -- if it rains or any water of any nature, of course, sooner or later must go into the river. It has to go somewhere.

MR. ONDERDONK: I see. Now, what effect would this salt water have on vegetation?

MR. WHITE: Well, it's shown in the slides, Mr. Onderdonk. It's killed some trees in the area.

MR. ONDERDONK: All right. Now, would this pipe that's running into the river, has it killed the vegetation there? Do you have something to show that it's killed the vegetation there where it's running into the stream into the river?

MR. WHITE: I don't have any slides to show that. Actually, the river is a very high flow stream, as we well know, and the water is diluted when it runs into the river, and I don't think it would

kill any vegetation along the river.

MR. ONDERDONK: Would it affect the fresh water supply there, the seepage or the overflow?

MR. WHITE: Over the years, probably the underground supplies of water, yes, in the immediate area.

MR. ONDERDONK: Over the years? How many years -- I'm not familiar -- how many years has this been existing down there pumping into the pit?

MR. WHITE: Since the field was discovered, I think, in 1952.

MR. ONDERDONK: All right. Is there any evidence of contamination of fresh water at this stage since 1952?

MR. WHITE: Underground or surface water?

MR. ONDERDONK: Underground.

MR. WHITE: We don't have any observation wells in the area, but we could drill some and I could show you that it would be some evidence of it.

MR. ONDERDONK: Do you know of your own knowledge that there are fresh water wells there and residents in the area who have fresh water wells?

MR. WHITE: Mr. Onderdonk, this is located in wild swamps of Clarke and Baldwin Counties. I don't think there would be any wells in the area.

MR. ONDERDONK: Are you aware of the fact...

CHMN. EDDINS: May I interrupt just a little bit?

MR. ONDERDONK: Yes sir.

CHMN. EDDINS: Mr. Onderdonk, I think we're getting a little off base here. What the Board is more interested in is the economics of this thing as to whether it's possible to put this water underground and not so much as to prove a point here as to what damage has been done. We anticipate trouble. We would like to do this thing on the basis so that we will not be confronted with this where we have to shut down these wells all at once, which we have the authority to do.

MR. ONDERDONK: Yes sir. We understand.

CHMN. EDDINS: Which we don't want to do. We want you people to tell us if it's economically feasible to dispose of this water. If it's not, then we've got to figure out ways and means of handling it, and as to cross examining Mr. White on this, I think that's unnecessary.

MR. WHITE: Mr. Chairman, I might with your permission add one thing. Some three or four years ago, because of the present method of disposing of salt water and generally handling salt water, we had an oil spill in the South Carlton Field which resulted in several hundred barrels of oil, perhaps a thousand barrels of oil, being dumped directly into the Alabama River, and it all was from the South Carlton Field, very nearly to Mobile. We spent literally

weeks cleaning this oil off the river and thousands of dollars that could have been saved and was not necessary had the salt water at that time been handled in a way that would have prevented this oil spill itself.

MR. ONDERDONK: The salt water had something to do with the oil spill?

MR. WHITE: The method of handling it. At one time, Mr. Onderdonk, the swamps in this area were completely covered with oil. All those pits that I showed you that now have clear water in them, at one time these pits in the entire swamp area inside the Carlton Field were completely covered with oil.

MR. ONDERDONK: Mr. White, you don't disagree that Clarkwin has cooperated with the Board in every way possible?

MR. WHITE: No, I haven't suggested such a thing.

MR. LaMOREAUX: Mr. Onderdonk, might I inject something here? Again, to get back to the purpose of this hearing, originally we had desired that you folks appear before the Board and discuss this matter with us. There is no question in our mind that you are disposing of salt water to surface streams and the river. This we have ample evidence of. We have asked that you folks appear before us and discuss the matter. Now, there is another alternative. Perhaps this might be the best course of action since there is some question apparently in your mind with regard to the problem and its

proper documentation, and that is that we could probably direct this matter to an issue or ask for, arrange the matter so that we could have a hearing on the matter before the Board.

MR. ONDERDONK: Yes sir.

MR. LaMOREAUX: Now, to do this, the Board can issue an order to close the field or parts of it and then you can petition the Board to reopen the field and then present whatever testimony you would like to in justification for that reopening, but the matter before the Board here is really not -- it was not our intent to approach it in this way.

Our intent was to actually open the avenues of communication and learn the facts, some of which you would have and we do not know.

MR. ONDERDONK: Yes sir.

MR. LaMOREAUX: So I would just as soon we would get back to the original request of the Board that was spelled out in your letter or my letter to you of May 29th in which we asked you to discuss the economics of production, the economics of total subsurface disposal of water, and any other matters that you would like to discuss, rather than get into a long discourse on whether you are or not disposing of salt water into pits, creeks, or the streams of the area.

So if you will proceed with that...

MR. ONDERDONK: In other words, you're interested in knowing the economies of disposing of this water by a salt water disposal well?

MR. LaMOREAUX: Right. We would like to know these facts, to the best of your ability, that we have asked for in our letter to you.

MR. ONDERDONK: Yes sir.

MR. LaMOREAUX: And I'd like for you to proceed at this time.

MR. ONDERDONK: Well, we can present that. That's the first time we understood exactly what the Board wanted from us.

MR. LaMOREAUX: Right.

MR. ONDERDONK: Mr. Gene Snell --

CHMN. EDDINS: All right, Mr. Snell. You may proceed.

GENE SNELL

appearing as a witness on behalf of Clarkwin Oil Company, being first duly sworn, testified as follows:

DIRECT TESTIMONY

Statement by Mr. Snell:

MR. SNELL: I have but one exhibit prepared to show the Board as far as the location of the -- it's not shown as Exhibit 1, but it's titled Exhibit 1. It's a plat map of the South Carlton Field.

CHMN. EDDINS: Mr. Snell, will you give us your qualifications first, please?

MR. SNELL: Yes. I'm Gene W. Snell, representing Clarkwin Oil Corporation. I'm a petroleum engineer. I graduated in 1951 from the University of Houston, 1952 University of Texas...

(Witness was asked to speak louder)

I worked with the Tenneco Oil Company for approximately seven years, with the H. L. Hunt Oil Company, staff engineer, and I'm now a petroleum independent consultant in Jackson, Mississippi...

(Witness was asked to speak louder)

I have also appeared before this Board as an expert witness in several previous cases.

CHMN. EDDINS: If there are no objections, his qualifications will be accepted. You are already sworn in?

MR. SNELL: Yes sir. Back to Exhibit No. 1 is a plat or a fieldwide map which was constructed by me.

MR. LaMOREAUX: Mr. Snell, do you have other copies of that?

MR. SNELL: Yes, I do.

MR. LaMOREAUX: Let's let the Board Members see these.

(Mr. Snell distributed documents to members of the Board and Staff)

MR. SNELL: This plat map, Exhibit No. 1, shows the location of all producing wells and dry holes as of record in the South Carlton Field area. The legend at the lower left corner denotes that the red dots are Clarkwin Oil Corporation producing wells.

The yellow are others, which are the Falcon Seaboard and Houston Oil Company, and the large green dots indicate the Clarkwin tank battery positions and their disposal pit positions in the field.

Now, not noted on the maps which you have are the wells that go into each one of the battery positions. There are at the present time four batteries owned and operated by Clarkwin Oil Corporation servicing their 19 producing wells. There are three battery sites on the Clarke County side and one battery site, which takes care of all production from the wells, on the Baldwin County side.

I haven't noted on here the Falcon Seaboard battery position because I didn't know its relative position to its well, nor the Houston, as that didn't primarily concern us.

Gentlemen, this is just about what it depicts.

EXAMINATION BY THE BOARD AND/OR STAFF

Questions by Mr. White:

Q How much oil does Clarkwin produce per month?

A Mr. White, the well tests which we conducted during May of this year, 1970, indicated that we were producing approximately -- this is on a 24-hour well test for each well in the field -- that we produced 492.12 barrels of oil.

Q How much salt water?

A Out of this, there was 3,911 barrels of salt water.

Q What percentage in oil and salt water?

A Well, that's going to be approximately 70% or something. I don't have it calculated in that area. There are wells in the field that have very low salt water production as converse to wells that have very high salt water production, and these are various downhole conditions.

Q Mr. Snell, on your Exhibit 1, I note the Wall No. 10 Well located in the northern part of Section 10, a dry hole?

A Wall 10, right? Right.

Q Are you familiar with this particular well?

A Only from -- I'm not familiar with this well as far as whether it has casing or what the present status is. My only familiarity is examining what logs or other geological data like that. I do not know whether it still has casing or anything like this.

Q Mr. Snell, for the record, exactly how -- to restate, this probably has already been stated -- exactly how is the salt water being disposed of in the South Carlton?

A According to my field examination, which took place within the last two weeks, the salt water is produced into the heater-treaters from each well.

Q Mr. Snell, will you, as you go along, explain some of these technicalities that you and I are perhaps familiar with that might be a little vague to the new Board Members?

A Okay, fine. Let's just start from a hypothetical well. That

well produces certain amounts of oil and water, no gas in this field, that both streams, both products are taken to a heater-treater, which is located at the main battery site. Now, the purpose for the heater-treater is separation of oil and water. The water is taken from the heater-treater and is run through what we call a skimmer tank. Skimmer tanks are located on these battery sites for several purposes. They're a safeguard. They allow that if mechanically this heater-treater fouls up and oil is carried over, we hope to contain it in skimmer tanks prior to its being put into the disposal pits. So we are now taking our oil from the well through the heater-treater for separation to the skimmer tank which we scavenger any and hopefully all of the remaining, we'll say, residue oil; from this skimmer tank, the water is dumped into the open disposal pits, surface pits. This general routine exists for each of the green battery sites you'll notice on the exhibit. At each battery site, with the exception of one to my knowledge, there are approximately three pits, large earthen pits, where water comes out of the skimmer tank and drops into pit number one. This is used as a first clean-up and settling pit. The reason for this is that should a mechanical happenstance occur, you confine your oil to one pit area. You could then go out with a **jagger** pump or transfer pump and skim that oil, if possible. When the water goes from

the first pit, it filters down to a second pit area. All the time from evaporation, et cetera, you are losing portions of this water going through these pits. From the second pit, it normally, if there is a third pit -- to my knowledge, there's three of the four battery sites that have three pits. It goes to its last pit for filtration and evaporation. I inspected these pits in the last month and a half, there's been several large flood crests that have come through there, and as Mr. White has pointed out, this is at the mouth of the Amazon, but I find that -- I see no evidence of salt water or produced water going into the streams. We do have, admittedly, a pipe running into the river on one of the battery locations. We can't get anything through the pipe. There's a valve in it, rather, somebody has stuck something in it, the oil -- but it's clogged up, but to my knowledge, based on my field investigation, that water was not going into the river, and that's just about it. I will say that I think the notations there of Mr. White on the timber, there are certain areas down there which are, I find, very nominal as far as what we would know as timber damage, are nominal. There are several areas, most of which, I think, have been caused from redirection of these roads and diking up and holding back some of this water. I could not say whether this timber has been killed by salt water overflow and pollution,

mainly because my activities have been primarily operation-wise in the field since May 1st of this year.

Q Mr. Snell, back to the Wall No. 10 dry hole, if this well could be converted into a salt water disposal well, are you prepared to discuss the economics of converting this well into a salt water disposal well?

A Well, yes. I can't give you a specific number, but based on several factors which -- all right, now, but you're going to be looking at somewhere in the neighborhood of $25,000 to $30,000, depending upon what you find. You're going in. You may just find that you'll have to drill another well. You also have the problem of reshaping lines from how many wells are going to be connected to this hypothetical disposal well, and believe me, gentlemen, through that country, it's not a very economic thing to start stringing lines through the woods and swamp. So that factor is a pretty sizeable factor which you really don't know until you know what wells are to be connected, how many, your volumes and so forth, but if we're talking specifically on a well, buy a pump, go in, clean out, keep your fingers crossed on about $25,000 to $30,000.

Q What is the present production rate of Clarkwin per month?

A It averages approximately 12,000, a little over 12,000 barrels per month at the current time.

Q What does the oil sell for?

A $2.39.

Q So your gross income is something in terms of $30,000 per month?

A Correct.

Q Could you give us an estimate of net on net?

A I'm afraid I can't.

Q What I'm trying to arrive at, Mr. Snell, is how long would it take a disposal system to pay out?

A This is a very, extremely difficult question to answer, because obviously you're not reaping any profit from a disposal well, and rule of thumb, if you have to dispose of water, let's say, in other states, in other fields, of which I am familiar, and as a general rule of thumb, that the operators taking this water are going to charge you something like a nickel or a dime a barrel. This is the operating cost on your plant and so forth, plus the other operators would have to partake of the drilling and completion and so forth for salt water wells. I think it would take an extremely long time, an infinite amount of time if you tried to put the economics in the pay-out of a salt water disposal well. Here again, one operator versus several operators.

Q Could you estimate that you're netting perhaps $1.00 a barrel

from production?

A Oh, I would say yes, after the State of Alabama taxes and what have you. I think that's a realistic figure.

Q You're estimating $25,000 for a disposal system. At 12,000 barrels per month, it would take something like two months to pay your disposal system out?

A Well, wait a minute. Don't hold my feet to the fire on something here. You're talking about a well in Section 10. Now, how many wells are you going to connect to that?

Q Well, Mr. Snell...

A Wait a minute. Plus the fact that we're over here in Baldwin County and we can't string lines across that river. These are generalities, gentlemen, I mean, as I stated, how many lines, how many wells, what kind of volume? Volume is money. There are other factors to be considered.

Q We have two tank battery and salt water sites in the Clarke County side.

A Three.

Q You have just -- you have three yourself?

A Yes, we have three.

Q Okay, and one on the Baldwin side?

A Correct.

Q What I'm trying to arrive at, Mr. Snell, as Mr. LaMoreaux has

pointed out, is the sheer economics installing a salt water disposal system -- how long will it take you to pay out, the feasibility of a project like that.

MR. COOK: Gene, are you talking about would it take a short time to amortize the cost?

MR. WHITE: That's what I'm trying to arrive at, Mr. Cook. How long will it take to pay out of the profits, how much profit would it require.

A (Snell) There's a basic emphasis on one well. Obviously, with the areal extent, it's going to take more than one well, and obviously, there are other parties to be concerned, as well as other factors. So I mean, I can state that on one well program, plus the fact that you'd better bump in about another 40 thousand bucks. You know, we're talking about a lot of money for a one-well system, depending on your lines as an index.

Questions by Mr. LaMoreaux:

Q So actually what you're talking about is in the magnitude of $150,000?

A Mr. LaMoreaux, I think you'll be talking $150,000 to $200,000 and you'd still better add 20% contingencies. It could become quite, quite expensive.

MR. SIMON: Mr. Chairman, I'm Gerry Simon, with Patrick Petroleum. We're affiliated with Clarkwin. I'm from Jackson,

Michigan. In discussing the number of barrels that we make and sell, as most of you are aware, we have just recently become involved, and in checking history records, production sales have run around 11,000 or 11,500 barrels per month. This is sales, gross sales. Now, from this, you have to deduct royalties and overrides so that the operator doesn't actually receive all of this. I think roughly speaking, we're talking about 80% of the oil that's sold comes back to the operator. Now, this may serve as a base for your calculations.

Now, one other thing. In discussing operational costs, we just aren't really in position to tell you what it's going to cost us to lift a barrel of oil. We hope to reduce it. However, the field as it now exists is in a fairly rundown condition, although thank goodness, the equipment and the well sites and so forth are in an unusually good condition for being located so far off the beaten path, but we plan to go in and work over many of these wells, clean them out, reperforate, stimulate if necessary, and try to build the production back up.

Now, if we do this, our lifting cost and outgoing costs are going to even be considerably higher than what they now are, until such time as this program has been completed.

Now, we have to feel our way along and we have to work over one well and evaluate it and see how good or how bad we've done

and see what we can learn from it and then proceed to the next well.

We have estimated that somewhere between a year and a half to two years will be the time involved in trying to revitalize this field and get the production back up. We can't guarantee any results. We wish we could, but it's something we're going to have to feel our way along on, and I bring this up, Mr. White, because your calculations of the economics in the per-barrel profit might not be realistic in view of what we now know and what we hope to accomplish in the near future, a year and a half or two years.

MR. LaMOREAUX: This is the kind of background information that we needed. This is what we wanted.

MR. SIMON: Yes sir.

CHMN. EDDINS: Have you given any thought to underground disposal of salt water?

MR. SIMON: Certainly. I would hope to believe that most oil companies today are well aware of this, most people in the oil business are aware of this. We feel that, naturally, the economics have a great influence on what you can do and how soon you can do it.

We are aware that we do have earthen pit storage right now. We were of the opinion when we became involved in the Clarkwin that there was no acute pollution problem present.

I've been to the field one time. I can't speak as an authority, but in looking around and in checking with the people that had operated the field, we were not aware that there was any acute pollution problem taking place or that there was plans at that time being made to treat the salt water in any other way other than what had been -- as it had been treated in the past.

Now, to get into a disposal, as Mr. Snell has said, the cost of, say, drilling a well might be erroneous to use as a base because the completion cost, the maintenance cost, the necessary storage that you would have to have in a disposal well, certainly have to be added to the cost of the disposal system.

The normal way in which you would complete a waste disposal well differs considerably from the way that you would just drill and complete an oil well. Further protective measures would have to be taken. The quality of the materials, the type of cement, for example, to be used in the cementing of a well would sometimes be considered in the drilling of a disposal well. The coating, the internal coating of the tubular goods that go in the well is necessary because the casing can corrode from the inside due to salt water.

So I would say that before you can come up and give you a satisfactory answer as to the cost of a well, the whole program, as Mr. Snell has mentioned, the well, the completion of it, the

equipping of it, what it's going to take in this particular case which, naturally, is of foremost importance, as to how we would have to reroute our lines, our producing lines, to get the water near the well to be disposed of.

Does that answer your question?

CHMN. EDDINS: Yes sir. Any other questions?

MR. LaMOREAUX: No.

CHMN. EDDINS: Thank you.

MR. SNELL: May I ask just one question, sir? Mr. LaMoreaux, is there any other documented information since Circular 22 that has been taken since publication in '63?

MR. LaMOREAUX: Yes. There is additional information on all the oil fields.

MR. SNELL: Fine. Thank you.

MR. SIMON: Mr. Chairman, may I say something? I beg your pardon.

(Mr. White presented report to Mr. LaMoreaux)

MR. LaMOREAUX: Actually, through a cooperative program with the U. S. Geological Survey, we have established a monitoring program of water studies in all the fields.

This matter of oil field pollution has come before the Water Improvement Commission for discussion on several occasions.

We have a monthly report from the U. S. Geological Survey to

us, this report to the Board, and this report in turn is transmitted to the Water Improvement Commission because the disposal of any industrial waste, whether it's from oil field waste or from another industry, comes under the jurisdiction of the Water Improvement Commission. So actually, you could be facing an action from either the Oil and Gas Board on this matter or the Water Improvement Commission, or both, and it is public water standards established by hearings over the State and implemented for Alabama that are a factor in disposal practices, as well as those rules and regulations, the implementation of those rules and regulations of the Oil and Gas Board, so it's really a matter that you could deal -- you could be dealing on this matter of salt water disposal practices with us or with the Water Improvement Commission, or both.

MR. SNELL: Are those reports for public purchase?

MR. LaMOREAUX: You can come in and discuss them with the Staff. They are on file.

CHMN. EDDINS: Yes sir?

MR. SIMON: Mr. Chairman, I want to try to impress the Board most heavily with the fact that we'd be willing to cooperate in any way with your organization or any other organization associated with pollution.

In fact, we would like to even set up a meeting in the field with your personnel, be delighted to.

MR. LaMOREAUX: We appreciate that.

MR. SIMON: To go over them, we can check the various salinity points that come up under discussion here and the other damages that have taken place, and during this interim, we would be delighted and happy to do anything we can to prevent and right a situation that we all call pollution. We are well aware of it and want to cooperate in any way we can.

MR. LaMOREAUX: We appreciate that attitude very much.

CHMN. EDDINS: Any other questions?

MR. LaMOREAUX: I have no further questions.

CHMN. EDDINS: All right. We'll get to the next matter on the agenda.

MR. LaMOREAUX: Thank you.

(Messrs. Onderdonk, Snell, Simon and Couvillon were then excused)

CHMN. EDDINS: The next item:

"The State Oil and Gas Board will, on its own motion, consider the matter of salt water disposal in the Gilbertown Field, Choctaw County, Alabama, and following testimony presented by operators and interested citizens in this field, will take action as it deems necessary."

Will all those that are interested in the Gilbertown Field come forward, please? Will those that are going to give testimony raise their right hand -- swear them in.

MR. LaMOREAUX: Will you please state your name?

MR. AINSWORTH: Otis Ainsworth.

MR. OGLESBY: Marshall Oglesby.

MR. SYLTE: Tom Sylte.

MR. NICHOLS: Ernest T. Nichols.

(Messrs. Ainsworth, Oglesby, Sylte and Nichols were then duly sworn by Mr. LaMoreaux)

MR. LaMOREAUX: Let it state in the record that they were sworn in by the Secretary.

CHMN. EDDINS: I believe you're listed here, Mr. Otis Ainsworth. We'll hear from you first.

MR. KNIGHT: Mr. Chairman, my name is Michael Knight. I practice law in Mobile and I'm here with Mr. Ainsworth.

If I may, with permission of the Board, make a statement for the record. I don't intend to cross examine anybody, merely clarify Mr. Ainsworth's presence and his ability to give the Board the information which it now seeks.

I certainly appreciate Mr. LaMoreaux's clarification of the Board's purpose in holding this meeting and like I'm sure the other operators in this field as well as the others, Mr. Ainsworth

appreciates the Board's deep concern and interest in the pollution problem that may exist in the Gilbertown Field.

He, however, did not come prepared today to defend against a charge of pollution. I don't think that's the Board's intent in summoning him here.

However, I think to perhaps give the Board more information, perhaps we should have brought water samples and soil samples and exhibits of which we have none.

In listening to Mr. LaMoreaux's statement of purpose, it appears that the issues were dual in nature. First, whether a well and not necessarily the field itself, but whether a well or a group of wells was a pollution problem, and secondly, if so, what were the economics of solving that problem if it could be solved.

To Mr. Ainsworth's knowledge at the present time, the wells that he operates have not presented a pollution problem. For that reason, he is unaware of any tree kills or anything of that nature which have been presented to him and has always, at least he advises me, been under the impression that field men from the Board have in inspecting his wells and the salt water disposal procedures he now uses indicated that none were presenting problems which needed rectifying at the present time.

Further, however, he is here, of course, in the utmost spirit

of good faith and cooperation with the Board in an attempt to give you all any information which he can, but may I say for the record that, and he would be prepared, willing, at anytime to make water samples and to make soil samples and to bring exhibits which the Board might request to clarify some of his statements, and for that reason and for the record, may I say that whatever he does say here would be merely in terms of generalities and would be subject to perhaps clarification in the future by whatever information the Board may request of him, and I think he is prepared at this time to answer any questions which the Board may have, and I'll ask him to take the witness stand, please, sir, just have a seat right there.

CHMN. EDDINS: All right.

MR. LaMOREAUX: Just a brief introduction now to testimony on the Gilbertown Field.

Approximately two years ago, all of the operators in the field met with us here at Tuscaloosa and discussed methods whereby we could handle more effectively the waste from the oil field, and at that time, our engineers, cooperating with the operators and their engineers, designed skimmer tanks and storage tanks, discharge lines, to minimize or to further control the movement of salt water from the production of oil to streams where it's diluted and eventually reaches the river.

Now, at the same time or prior to that, on a cooperative arrangement with the U. S. Geological Survey, we installed observation wells and stream-gauging stations in this field and in other fields of the State, oil fields in the State, and from those observation wells and the streams, we either periodically collect information or have instruments installed which record the chloride and some other mineral constituents in the water, and these data are submitted to us on a monthly basis by the U.S. G.S., and I mentioned them as just previously here, as a regular monthly report, and that data is available to you.

10-6-70

Now, in the Gilbertown Field when the chloride in the streams as a result of this discharge of water from the wells, salt water from the wells, when the chloride in the streams begins to build up to about 1,000 parts per million, which we have arbitrarily assigned as that point which is the beginning of potential problems to the environment.

Then the field is put on alert and in some instances parts of the field have actually been shut in because owing to the lack of rainfall, therefore the decrease in stream flow, the chlorides build up in the streams and a danger point begins to approach, and at that time, we will issue instructions to segments of the field to stop production until the rains begin again and there will be enough dilution to handle the salt being produced.

Well, over the years now, the production of water from the field has increased and as a result of more and more salt water going into the streams, we are having a greater amount of chloride content recorded in the streams, and we can project on into the future to a point where we will have more and more problems of this type.

So that was why here again we've asked the operators to come before us and the Board to discuss this matter there in the Gilbertown.

IE 10-6-70

Now, part of the Gilbertown Field is under a system of underground disposal. Mr. Oglesby has a disposal well that he operates, just recently renovated so it would accept the salt water better, more effectively, but we still do have this substantial amount of brine being discharged to the streams, and every now and then, we will have one of the heater-treaters malfunction or the storage tanks malfunction and we'll have a substantial discharge of oil to the surface and to the streams and this causes great consternation among the ranks, so to speak.

We get calls and also if the chlorides in the streams begin to pick up, why, we can be notified. So that's why we've asked the operators to meet with us once again, particularly those that are not disposing of brine underground, to give us what evidence they can so that the Board can be informed and can decide just what

should be done as we go on into another year or two years or three years at Gilbertown in the production of oil from this field.

Now, with that background, Gene, do you want to proceed with the questions of Mr. Ainsworth?

MR. WHITE: I would just like to state for the Board, for the new Board Members, just briefly that the Gilbertown Field produces approximately 12,000 barrels of oil per month and 500,000 barrels of salt water per month. 250,000 barrels of salt water are being disposed of underground. The other 250,000 barrels are going in the streams in the area.

I think, Mr. LaMoreaux, as pointed out in your letter, that probably the best way to proceed would just be to discuss the economics of total sub-surface disposal and the economics of field production.

MR. AINSWORTH: Could I say something? What I'd like to do is have Mr. White meet me out there anytime next week or at his convenience and let's go over the thing and see what would be the best way and the most economical way and see if we can live with it. We may have to have a gathering system.

MR. LaMOREAUX: That's one of the reasons why it was necessary to bring you all together because actually, do we have the field map up here, Gene?

MR. WHITE: Yes sir.

MR. AINSWORTH: And Mr. Oglesby, I'd want him to be there,

too, because he has some wells.

MR. LaMOREAUX: You can see here on this map that Gene has prepared what we're up against as far as the Gilbertown Field and salt water disposal.

Now, roughly, that area to the east toward the Tombigbee River is the area where underground disposal is being carried out. To the west, roughly, of the line north-south through Gilbertown, the water is being discharged to the streams.

MR. WHITE: All of these blue dots on this diagram are tank battery locations. This is the salt water disposal system that's presently taking some 250,000 barrels per month of salt water and all of the other blue dots are tank battery locations where the salt water is being discharged directly into the streams. Some 150,000 barrels of salt water are being disposed of in various streams.

MR. OGLESBY: Gene, may I ask something? You say that we're disposing of around 250,000 barrels a month?

MR. WHITE: Right, roughly. That's plus or minus 5 or 6,000 barrels, one way or the other.

MR. OGLESBY: It'd be nearer around 150.

MR. WHITE: Well, we measured it one time -- 150 to 200, depending on what the production is and how many wells are going into it.

MR. OGLESBY: From the other 40 wells there, around 120. Of course, we realize we've got a pollution problem there.

MR. WHITE: Of course, now, you're talking about your operations?

MR. OGLESBY: No, I'm talking about total.

MR. WHITE: We very carefully measured this a month ago.

MR. OGLESBY: My calculation was with the efficiency of the pumps at 80% efficiency.

MR. WHITE: We took a stop-watch and a five-gallon measured container, took three readings on each discharge station with a stop-watch, and we came up with something approaching 250,000 barrels per month.

MR. AINSWORTH: Gene, is that being taken by vacuum or what? Was yours, Marshall?

MR. WHITE: No sir, it's being pumped underground under high pressure, 6 or 700 pounds, in the disposal system.

MR. LaMOREAUX: We might ask Mr. Oglesby if he could give us an idea of what it would take to put this salt water underground in a disposal system, in other words, put the whole field under a disposal, sub-surface disposal system.

MR. WHITE: Could we -- Phil, excuse me -- could we talk in terms of fieldwide disposal, Marshall, have you run your calculations on fieldwide disposal as opposed to your own particular operation, that is, what -- could you give us two figures, one for your operations and one if you had a salt water disposal system in the field with cooperative efforts on the part of all operators?

MR. OGLESBY: Well, from the west end, the Land A-1, I don't believe it's on there -- that may be it.

MR. WHITE: This is it.

MR. OGLESBY: To the east end of the field, the Mattie Clark Well over there, Mattie Clark 1, is some 20 miles. Of course, one pipeline, you talk in terms of, well, say, from the Scruggs A-1 to the Scruggs battery, it's almost eight miles. So that's 40,000 feet of pipe there to get it to one system. So just on that end alone, you'd be looking at somewhere in the neighborhood of 100,000 feet of pipe, and pumps, installation and so forth, would run, I expect, $40,000. It takes somewhere in the neighborhood of 500 pounds of pressure. You'd have to have about a five-inch pump. It would move about 5,000 barrels a day, to take care of those wells. So in the Gilbertown Field, you would have to be looking at several disposal systems.

Our Humble facility is loaded now. It has twenty wells.

MR. LaMOREAUX: Mr. Oglesby, do you have any idea how many disposal systems would be required to handle this amount effectively?

MR. OGLESBY: At the Humble facility, there is seventeen wells going in it. Now, those wells make considerably more water than, say -- they run around 500 barrels a day, and incidentally, a percentage of those are about 5%, the decline there...

MR. WHITE: What, Marshall?

MR. OGLESBY: About 5% oil.

MR. WHITE: Would you repeat that, please?

MR. OGLESBY: Ninety-five percent water. Now, Don, you've probably checked this. The curve is fairly flat, the declining curve. So within the next few years, we don't anticipate a lot of more salt water, and of course, jumping back over to the east end, we've got wells there that I would like to suggest to get with field agents and Gene -- the Scruggs 1 and 2, which are only making three or four barrels -- look at those things. We can check them to make sure exactly what they are doing. When I say that, I know about what they're doing, going into a common battery which we check every month, but possibly shut in some of those wells, but back to Mr. LaMoreaux's question -- it would take at least four.

MR. WHITE: Four disposal systems?

MR. OGLESBY: Four disposal systems.

MR. COOK: Let me ask you a question. Didn't you just say that you're taking the salt water disposal out of twenty wells and putting it in one underground disposal?

MR. OGLESBY: It's actually seventeen. I used the figure twenty, yes sir.

MR. WHITE: Could you give us an idea of how much money it

would cost, Mr. Oglesby, to install total sub-surface disposals?

MR. OGLESBY: Well...

MR. WHITE: Excuse me, just a minute.

(At this point in the proceedings, the tape was changed on the tape recorder)

MR. OGLESBY: We'll start, for example, on the west end of the field. Running from the Scruggs A-1 lease back to the creek, or I suppose that red dot on the Pusscuss Creek there would be the Scruggs battery, from that well to that battery, assume that you put a disposal system there, is approximately five miles or 25,000 feet of pipe. The Land A-1, then you would come to the Charles Land to the Green and the Boney Well and to the Scruggs Wells and the Utsey Wells, you would be looking at somewhere in the neighborhood of 100,000 feet of pipe.

MR. LaMOREAUX: So we're talking about 100,000 feet of pipe?

MR. OGLESBY: At 80 cents a foot, maybe a dollar. So you're looking at $150,000. Now, we bought part of that field in 1960 from Hunt, and of course, Mr. Hunt doesn't give anything away much and the field was about $90,000. So you can just assume that that's about what it was worth, or it was then.

In that area, I think we have some wells that we could shut down. In the area, we have redrilled Utsey 4, which is a pretty good well for Gilbertown, 30 barrels a day. The Scruggs A-1 is a pretty good well.

I was fixing to say, we bought that in 1960. At that time, we had, oh, five, about eight more wells into there and we drilled some wells. Then here last year, we bought the Humble property, which has a disposal system there, but two years ago, as you mentioned, we got with the Board and put in skimmer tanks at all the locations in Gilbertown, and I think I would be safe in saying over this last couple of years that probably we've had oil to spill out of the tanks into the streams maybe one time, possibly twice, which was more of a human error rather than the system that we have, as far as getting the solids into the stream, leading water off the tank and if we get it in something of that nature where we did have some oil in the stream, Gene, two months ago, something like that, where they were enlarging the refinery here and they couldn't take the oil. We were there about two months shut down to semi operations and the treater hung up. We had full tanks there, which normally you don't have, but...

MR. LaMOREAUX: What recommendations would you make, Marshall, as far as taking another step toward a little greater pollution control, a little more control of salt water?

MR. OGLESBY: Phil, when you speak of pollution control, now, are you thinking of salt water?

MR. LaMOREAUX: Salt water and oil field waste.

MR. OGLESBY: I think we have the oil field waste, as such,

the oil, I think we pretty well have that whipped. Wouldn't you agree?

MR. WHITE: Well, certainly we've made a lot of improvement on it. I hope we have it whipped.

MR. OGLESBY: Well, it's almost impossible, virtually impossible for oil or BS&W, as such, to get into the streams through the skimmer tanks and so forth. We have enough storage there, if something goes wrong, they will hold for several hours.

MR. LaMOREAUX: How about handling the salt water?

MR. OGLESBY: In the area of the salt water, Phil, the only thing that we could do is I would just have to shut down some of these marginal wells. It's just economically impossible to do anything with them.

MR. LaMOREAUX: In other words, what you're saying is, if we went to salt water disposal underground, that some marginal wells would have to be shut in at this time?

MR. OGLESBY: Yes sir, and looking at this thing for the last few months, four or five months, I think, I don't know whether I mentioned it to Dave or not, double-checking some of those wells, actually shutting some of those wells in anyway.

MR. WHITE: Would this cut down substantially on the water coverage?

MR. OGLESBY: Oh, yes.

MR. WHITE: How much?

MR. OGLESBY: Well, as water as opposed to oil on the Scruggs battery, I think you would have some data as to how much oil is being produced at the Scruggs battery. Dave, do you remember?

DAVE (~~UNIDENTIFIED~~ Turner): Sixty gallons a minute at Scruggs.

MR. OGLESBY: That's a barrel and a half a minute.

MR. WHITE: About 60,000 barrels a week? Per month?

MR. OGLESBY: A barrel and a half a minute.

MR. WHITE: So that's about 60,000 barrels per month.

MR. OGLESBY: But there we could probably do away with a couple of those wells and lose maybe, maybe three of them, ten barrels a day production.

MR. WHITE: How much water?

MR. OGLESBY: Well, you said 2,000 barrels. That would be 60 a month would be 2,000 a day, wouldn't it? Yes. Probably around 3,000 a day, 10,000 a month.

CHMN. EDDINS: Mr. Sylte, have you any comments that you'd like to add to these?

MR. SYLTE: Well, first of all, I'm representing Frank Kelton. It would shut us down. The economics...

CHMN. EDDINS: Frank Kelton?

MR. SYLTE: Yes.

CHMN. EDDINS: How many wells?

MR. SYLTE: One and a half.

MR. LaMOREAUX: Do you have any comments that you want to make regarding it?

MR. SYLTE: Only relating to the Morgan No. 3 because of the age of the well. It just wouldn't be feasible.

MR. LaMOREAUX: I'm sorry. I can't hear you.

MR. SYLTE: The thirteen-year-old well there, it just wouldn't be feasible to putting in a $30,000 system. We'd just have to shut down if we had to go to that.

MR. LaMOREAUX: You wouldn't be adverse, though, if something were worked out for joint use of a disposal system to participate in that?

MR. SYLTE: If the economics were right, but based on twenty barrels a day, you just can't have much expenditure and make it. That's what I'm thinking, with that pipeline. It just wouldn't work. I think overall the whole system is going to take care of itself in the next five years, and these wells are going to gradually peter out. This is a pollution problem that will diminish within five years, it will probably be non-existent.

MR. LaMOREAUX: In other words, in about five years, what you're saying is that the production of these wells is going to be such that the wells will be shut in anyhow?

MR. SYLTE: Right.

MR. KNIGHT: May I ask Mr. Ainsworth one question?

MR. LaMOREAUX: Yes.

OTIS AINSWORTH

appearing as a witness in his own behalf, being first duly sworn, testified as follows:

DIRECT EXAMINATION

Questions by Mr. Knight:

Q What effect, Mr. Ainsworth, if any, would a sub-surface disposal have on your operation?

A Well, unless I could share it with Mr. Oglesby and get a dry well somewhere, I'd have to shut mine in. If I had a dry well and wouldn't have pipes, I might could -- might take it on gravity -- it won't take it on gravity?

Q By and large, this would have the effect to cause you to shut down?

A What I would like to do before I would say that, I would like to have Mr. White come down and make a survey of the cost, state the facts on it, yes sir.

CHMN. EDDINS: Any comments from anyone else?

MR. NICHOLS: Yes. I'd like to say something on my behalf as an operator down there and on behalf of Mr. Cooper ~~Williams~~ Wrighams on whose property these wells are located.

8-24-70

(Reporter asked witness to give his name)

MR. NICHOLS: E. T. Nichols. With regards to the actual economics, I'm perfectly frank to say that last year the properties had a net profit of $2,000, so that does pretty seriously limit the amount of money that you could spend for salt water disposal system.

I would like to say, of course, all of us realize that the best place to put salt water is back into salt water sand, but down there at the Gilbertown Field, I think I'm correct in saying the first salt water sand is below the producing sand. There aren't any really salty water sands above the Selma Chalk. Isn't that right?

So that from a practical point of view, to actually deal with pollution, you'd have to drill a well down through Ordovician? sand down below the producing sand, and there aren't any wells in the vicinity like that.

Let me point out where my lease is. It's right in here. It's not too far from Humble's salt water disposal system, and the lease does not make a lot of salt water. Now, perhaps you have a measurement. If you have, I'd like to ask if you do have a measurement, how much salt water that particular lease makes?

MR. WHITE: Dave?

DAVE (~~UNIDENTIFIED~~ Turner): It's making about a quarter of a gallon a minute. That's when both wells are running.

MR. NICHOLS: You are actually getting some discharge from the heater-treater? And we operate the wells just during the daytime. We don't operate them at night. My calculations show that we make about 50% water and about 50% oil.

Actually, we do not produce a lot of water.

MR. WHITE: That's true.

MR. NICHOLS: And the only check we've actually had on pollution is the fact that we have had a pit 300 feet from a fresh water well that Mr. Williams used to supply water to his house, and the wells were drilled in 1951. Water has always been put in that pit about 300 feet from this other well, and from 1951 till now, there's been no evidence of any change in the water, in the content of that water.

So it's my belief that actually putting the water out on the surface -- this may sound like heresy -- but I think for the waters on the surface, to dilute them with rain water, you are apt to get less pollution than if you inject it into a fresh water sand, because if you're injecting that water in a fresh water sand someplace, you're actually building up concentration of pollution that may come out someplace which would require using a fresh water activer.

MR. LaMOREAUX: That's not heresy. That's standard understanding.

MR. NICHOLS: Do you go along with that?

MR. LaMOREAUX: We don't allow any injection in fresh water sands.

MR. NICHOLS: We don't have any wells that are deep enough to act as salt water disposal wells, and obviously from our economics, it would be impossible to drill a well down there. It just costs $70,000. There's just no way.

MR. LaMOREAUX: Well, actually, if the whole field were producing at the rate that your wells are producing, there would be a minimum of a problem. This is about 300 gallons per day from your operation. This is not a large amount of salt water, but the production that Gene remarked about at the beginning of 500,000 barrels a day, is a substantial amount.

MR. NICHOLS: Right. I would like to ask this question. Naturally, we've given thought to what we could do to solve this problem. There is practically no production from the Selma Chalk now, I believe, in the field, by what data that I have, and the chalk was fractured chalk. It would seem to me that most of the wells penetrate that chalk and that possibly you might dispose of water into that chalk and other fragments of that chalk.

Now, I'd be willing to undertake to do that. I have one well, of the two wells, one of them is perforated in the chalk, but it doesn't produce from it. I'd be willing to undertake to see

whether or not we could dispose of water in that way. You've actually put water in the well and circulated it. One of the wells makes a little water. Then I put water from the other well in with it to get enough water in the treater to treat the oil. It's almost impossible to treat oil when you don't have some salt water with it.

But anyway, that's why I was going to suggest we might try putting it in the Selma Chalk.

CHMN. EDDINS: Anyone else have anything?

(No response)

CHMN. EDDINS: Anything from the Staff?

MR. LaMOREAUX: Nothing.

CHMN. EDDINS: Gentlemen, we want to thank you for coming up, and we'll take it under advisement, and assure you that we want to work with you. We certainly don't want to work any hardship on anybody or put any wells out of commission that we can avoid doing, and we hope that you folks will be thinking along and working with us, and that concludes the meeting, except for the approval of the minutes.

MR. LaMOREAUX: The minutes are in order and we recommend them to the Board for approval.

CHMN. EDDINS: Do I hear a motion?

MR. COOK: What is it, Mr. Chairman? What did you say?

MR. LaMOREAUX: I said the minutes are in order and we

recommend them to the Board for approval.

MR. MADDOX: I move that the minutes be approved.

CHMN. EDDINS: Mr. Maddox has made a motion.

MR. COOK: Well, I second it.

CHMN. EDDINS: You've heard the motion. All in favor, say "aye."

(All Board Members voted "aye")

CHMN. EDDINS: Next is the Executive Session.

MR. LaMOREAUX: We will adjourn the meeting and adjourn for lunch, and we will take the information that you have brought to the Board at this time under advisement and it will be discussed with the Board and you will be hearing from us with regard to those discussions.

We appreciate your coming. This was what we intended on the first step here, was a frank discussion of the problem that we face. We hope we can work out something, either total or partial solutions to some of these problems.

(Whereupon, at 12:40 P.M., June 19, 1970, the Board adjourned the Regular Session of the hearing to go into Executive Session.)

* * *

REPORTER'S CERTIFICATE

STATE OF ALABAMA )
)
COUNTY OF TUSCALOOSA )

I, Lou M. Chambers, Hearings Reporter for the State of Alabama, do hereby certify that on Friday, June 19, 1970, in the Board Room of the State Oil & Gas Board Building, University Campus, Tuscaloosa, Alabama, I reported the proceedings before the State Oil & Gas Board of Alabama in Regular Session; that the foregoing 86 typewritten pages contain a true and accurate verbatim transcription of said proceedings to the best of my ability, skill, knowledge and belief.

I further certify that I am neither of kin nor of counsel to the parties to said cause, nor in any manner interested in the results thereof.

Lou M. Chambers

LOU M. CHAMBERS
Hearings Reporter
State of Alabama