CASE 3100: Application of LEONARD

NICHOLS for waterflood extension,

Lea County, New Mexico.

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# DEARNLEY-MEIER REPORTING SERVICE, Inc.

## BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION Santa Fe, New Mexico

September 9, 1964

### EXAMINER HEARING

### IN THE MATTER OF:

Application of Leonard Nichols for a Unit Agreement, Lea County, New Mexico

Application of Leonard Nichols for a Waterflood Extension, Lea County, New Mexico.

Case No. 3099 & 3100

### BEFORE:

Mr.

Nutter

Mr.

Durrett

### TRANSCRIPT OF HEARING

MR. NUTTER: The Hearing will come to order. We will call the first case, Case No. 3099.

MR. DURRETT: Application of Leonard Nichols for a Unit Agreement, Lea County, New Mexico. Case No. 3100, application of Leonard Nichols for a Waterflood Extension, Lea County, New Mexico.



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1120 SIMMS BLDG. . P. O. BOX 1092 . PHONE 243-6491

MR. DURRETT: If the Examiner please, we received a telegram from Mr. Fred Watson from the law firm of Watson and Watson, representing the Applicant requesting these cases be continued until the next Examiner Hearing.

MR. NUTTER: These cases will be continued until the next Examiner Hearing.

We will call Case No. 3101.

STATE OF NEW MEXICO នន COUNTY OF BERNALILLO

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

Witness my Hand and Seal this

day of October 1964.

My Commission Expires: March 25, 1968

I do hereby certify that the foregoing is a complete record of the presentings in

the Business hearing of Case No. 3049-3/00 heard by me on 9/9 1969

New Mexico Oil Conservation Commission

|  |              | Page 1   |
|--|--------------|----------|
| NEW MEXICO OIL CONSERVATIO  EXAMINER HEARING | N COMMISSIO  | <b>N</b> |
| SANTA FE                                     | , NEW MEXICO | <b>-</b> |
| REGISTER                                     |              |          |
| SEPTEMBER 9, 1964                            | TIME:        | 9 A.M.   |

REPRESENTING: LOCATION: Richard S. Morris Seth, Montgomery, Jedenici & dendrews parta Ze Sohn J. Rusself John L Cox Succel International Petr Roswell, M.M. Relut W. arrendiell midland Rex Clark marshall Smith Sant Le R. W. Byram John Guronha John L. Corp Killah & Fox Dallas Jaan Kellahing Ralph Z Bray Sate Fe Hill a meckey artesea

HEARING DATE

# BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION Santa Fe, New Mexico September 30, 1964

### EXAMINER HEARING

IN THE MATTER OF: Application of Leonard
Nichols for a waterflood extension, Lea

County, New Mexico. Applicant in the above-)
styled cause, seeks approval of the
extension of the waterflood project which he
operates in Sections 2, 3, 10 and 11,
Township 17 South, Range 32 East, Maljamar
Pool, Lea County, New Mexico, by the
addition of 6 water injection wells in
Sections 4 and 9, same township. The
original flood was authorized as the BollerNichols Waterflood Project, Roberts Pool, by)
Order No. R-1538.

Case No. 3100

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING



MR. UTZ: We will call Case 3100.

MR. DURRETT: Application of Leonard Nichols for a waterflood extension, Lea County, New Mexico.

MR. WATSON: Representing the Applicant Leonard Nichols Fred Watson of Watson and Watson, Artesia, New Mexico; and Mr. Harold C. Porter of Artesia, New Mexico.

(Witness sworn.)

(Whereupon, Applicant's Exhibits 1 through 10 marked for identification)

MR. WATSON: Gentlemen, this is a hearing for an extension of a waterflood project by Leonard Nichols in Sections 4 and 9, in Township 17 South, Range 32 East, by the conversion of six wells to water injection.

Mr. Harold C. Porter is a witness for the Applicant and I believe Mr. Porter has testified several times before this Commission, and I request a ruling as to whether his qualifications are acceptable.

MR. UTZ: He's a qualified witness.

MR. WATSON: In the first place, in anticipation of this hearing and the fact that Mr. Frank Irby was going to be out of town, we sent the exhibits to him, and we have a letter which should be a part of the record at this time, dated September 23rd from Mr. Irby, stating that the Engineers Office offers no objection to the granting of the application.



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MR. WATSON: At this time we haven't indicated Case

3099 concerning a unit, and at this time I would like to offer
into evidence as Applicant's Exhibit A, a letter addressed to
the Oil Conservation Commission from James T. Jennings, and
Emmett D. White of Roswell, New Mexico, the owners of the
Number 1 Federal Francis Well, located in the southwest-southeast
quarter of Section 4, Township 17 South, Range 32 East; in
which letter the writers concur in Mr. Nichols application for

a waterflood extension, and further state that when a satisfactory

unit agreement or cooperative waterflood line agreement has been

worked out, they will join with Mr. Nichols in the project.

their concurrence in the application.

Heretofore they were going to form a unit, but this is to show

MR. UTZ: We have a copy of that letter in the file.

MR. UTZ: What was the location of that well again?

MR. WATSON: In the southwest of the southeast of

Section 4, Township 17 South, Range 32 East, which is a Federal

Lease owned by Jennings and White, the writers of the letter,

(Whereupon, Applicant's Exhibit A was marked for identification.)

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



40 acres.

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### DIRECT EXAMINATION

BY MR. WATSON:

Q Mr. Porter, you have before you what has been marked Applicant's Exhibit 1 in Case 3100. Would you describe that, please?

A Exhibit 1 is an area map showing the sections which we are applying for for waterflood; also showing operators of leases for an area of over a two-mile extension, or distance in either direction.

Q In other words, this depicts the area within at least two miles?

A Yes.

Q Referring to what has been marked Applicant's Exhibit 2 in Case 3100, would you describe that please, what it depicts?

A Exhibit 2 is a plat of a portion of the Maljamar Field which shows the present injection wells in the Leonard Nichols waterflood, and also shows the wells being applied for as an extension, shown by the dotted lines. Injection wells are circled. This is a normal expansion of the existing pattern in the area and with reference to the well in the northeast-northeast of Section 9, I talked to Mr. Nichols superintendent yesterday, and that well has been drilled, casing has been set and they are completing it today as a producer; so that should be shown as a producer. It's shown as a location on this plat.



With reference to the Jennings and White well which can be seen there in the southwest-southeast of Section 4, you'll notice that it is completely surrounded by injection wells. What Jennings and White and Leonard Nichols propose to do is to have a pooling arrangement of the working interest ownership to the extent that the working interest ownership in all these wells become common; therefore protecting the correlative rights of Leonard Nichols with respect to that one producer.

Is all the acreage, with exception of the southeastsoutheast Section 4, 17, 32, all of the acreage is Federal acreage, isn't it?

The southeast-southeast shown as the That is correct. Leonard Nichols A. C. Taylor Fee Lease; in that lease also is the area shown south in Section 1, it's in one common lease. Therefore, the Federal Leases and the one fee lease will be balanced out as far as injection is concerned.

This proposed expansion is fully compatible with the pattern which now exists?

That is correct, yes.

MR. UTZ: Do you have an exhibit that shows the old flood and the expansion?

Yes, sir, this exhibit shows it. To the east you see the wells which are connected by a solid line.

MR. UTZ: Yes.



A That is the existing pattern, those are the existing water injection wells.

MR. UTZ: The ones connected with the dashed lines are the expansion?

A Are the new ones being applied for.

MR. UTZ: I see.

Q (By Mr. Watson) Referring to Exhibit 3; this exhibit depicts what, Mr. Porter?

A This shows the area which is Federal land and in which the ownership will be made common by a fact of the unit, not the unit agreement, but the working interest pooling agreement which is being drawn right now, as I understand it by the attorneys and to which the working interest ownership has agreed in substance to. Therefore, for all practical purposes this can be considered as one lease.

MR. WATSON: If the Examiner please, Exhibit 3 shows, contains in a legend the unit boundary. It shows a dotted line. This was prepared when we contemplated a formal unit for the applicant, but of course that is no longer applicable as reflecting a formal unit agreement.

MR. UTZ: How about the new well, will that be included in that?

A No, sir, it will not. The ownership in the new producer, and also in the injection wells in the southeast-south-



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east of Section 4 will belong to Leonard Nichols, as it does now and will be kept out of this pooling agreement.

Referring to what has been marked Applicant's Exhibit 4 in Case 3100, would you describe that, please?

A Exhibit 4 is a gamma ray neutron log on Leonard Nichols Isles Number 13 in the northwest-southeast of Section 4, and is being presented as a typical injection well completion. In this well I have marked the Lovington zone as being the bottom perforations in the well; the Premier zone, which occurs from 4,000 to approximately 4,050 feet, and the Metex zone which occurs from 3,930 to 3,990, roughly.

The Premier and the Metex zones are the principal producing zones in this area and are the ones being flooded in the existing waterflood. Out plan is to plug off the Lovington zone which is very spotty and has very little continuity in the area, and to set a packer between Metex and Premier injecting down two-inch tubing into the Premier zone and down the annulus between the tubing and the casing into the Metex zone.

Mr. Porter, is this the scheme of injection which was submitted to Mr. Frank Irby?

Yes. I have another exhibit which shows a schematic drawing of an injection well completion, also.

Please refer to Exhibit 5 and describe that exhibit, please.



A Exhibit 5 is a compilation of the well completion data for both the Leonard Nichols wells and the Jennings and White for both the Leonard Nichols wells and the Jennings and White well. Those wells were drilled in 1960, '61, '62. The common method of well completion was to drill to approximately 500 method of well completion was to drill to approximately 500 feet and set 8 and 5/8ths casing, cementing back to the surface, and then 7 and 7/8ths hole was drilled completely through the pay zones and 5 and 1/2 inch pipe was cemented with amounts pay zones and 5 and 1/2 inch pipe was cemented with amounts ranging from 450 to 350 sacks.

I've calculated the top of the cement column, using standard tables. No core was taken and the only logs run were gamma ray neutron on the porous zones were picked from these logs and neutron on the porous zones were picked from these logs and perforated. Standard treatment was to treat with approximately perforated. Standard treatment was to treat with approximately also gallons of refined oil, 30,000 pounds of sand. This exhibit also shows the I. Ps, and the cumulative production through the first of 1964.

MR. UTZ: Does this exhibit also list the injection wells, or just the producing wells?

A It includes both the injection wells, the proposed injection wells and the proposed producers. However, I do not have them marked out. I can name them, however, and we can have them marked out.

MR. UTZ: I think it would be a good idea to do that.

A The first one mentioned at the top of the page, Taylor

B-1 will be injection well; Isles Number 13, Isles Number 15;



Isles Number 16, Isles Number 20 and Isles Number 21.

MR. UTZ: All right, thank you.

Q (By Mr. Watson) Now then, Mr. Porter, referring to Applicant's Exhibit Number 6, is that the schematic diagram of the proposed injection well completions?

A Yes, sir, it is. It is pretty much a duplication of Exhibit Number 4, but it shows approximately the top of the cement column outside the 5 1/2 inch. It also shows the 8 5/8 casing and the cement to the surface outside the 8 5/8's; the two inch tubing with the packer set between the Metex and the Premier zones with injection down the tubing casing annulus, into the Metex, down the tubing into the Premier. We have found in this area the Metex will take water in preference to the Premier, and that an injection well such as this will give us a real good injection rate into each zone.

MR. UTZ: That is the reason for the separate injection?

- A Yes, sir, that is the reason.
- Q (By Mr. Watson) You used different pressures on the injection zones then?

A Yes, sir, that is true. The Premier takes more pressure to achieve an injection rate than Metex does.

- Q Now then, Exhibit 6 was submitted with what has been marked as Exhibit 7 to Mr. Frank Irby, is that correct?
  - A Yes, I sent Mr. Irby a complete set of exhibits.
  - Q Along with Exhibit 7, being a letter to Mr. Ircy dated



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September 18, 1964?

A That is correct. The significant thing in the letter is that we've agreed that we will inject only fresh water down the annulus, and Mr. Irby has agreed that this is satisfactory. We have a letter from him which is --

MR. WATSON: Marked Exhibit 8. We have included this as an exhibit and I believe it's part of the record, also, already.

MR. UTZ: That will be all right.

- Q (By Mr. Watson) Exhibit 8 is the letter received from Mr. Irby in response to your furnishing him with the exhibits and the letter?
  - A That is correct.
  - Q Exhibit Number 9 is what?

A Exhibit Number 9 shows the oil production data from the Grayburg zones only. There are two wells in this area. On Exhibit 2 they are Wells Number -- Isles Number 22 and Isles Number 24, completed in the Lovington zones only; so I have eliminated the production from the Lovington zone in an effort to arrive at the production from the Grayburg zone. This shows the, I don't remember the number of wells, the barrels of production from the Grayburg zone, and the average production in barrels per well per day.

The purpose of this exhibit is to show that production did



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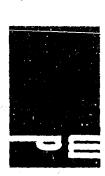
start out at a high rate and now has declined to a low rate, and that these wells are producing on the order of six and a half barrels per well per day, which I believe is in the order of what is normally known as a stripper well, and therefore should be in the category for a waterflood permit, as opposed to a pressure maintenance.

Q These wells then are approaching the economic limit and flooding would be feasible, is this correct?

A Yes, they are. They're down to six and a half barrels a day, and are classified as stripper wells and are approaching the economic limit. This area I would like to point out, was drilled much later than the area to the east. Those wells were drilled in the '39 and '40s, and these wells produce from the same reservoir and the same geologic zones, and it's quite likely that much of the pressure has been bled off from the production to the east.

The recoveries from these wells have not been as good as the wells to the east. The total oil that has been produced from these wells from the Grayburg zones is 208,207 through July of '64, for an average of 21,820 barrels per well. The average to the east is in excess of 30,000 barrels per well recovery by primary methods.

Q Now then, Exhibit Number 10 is a request letter drawn by you as agent for Leonard Nichols, dated September 29th, 1964,



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a request for an approval of the expansion made to the United States Geological Survey Field Office, Hobbs, New Mexico, is that correct?

A That is correct. I sent them the data that I'm submitting here in the form of exhibits, asking the United States Geological Survey to approve this application. I have talked to them verbally and they have said it looks like it's all right.

Q And they did indicate that they would approve this by letter, or give administrative approval on this?

A Yes. I would like to also, if I may, read into the record another letter from the Caprock Water Company, dated August 25, 1964, to Mr. Leonard Nichols. It reads: "Thank you for your letter of August 20, 1964 requesting water for your waterflood project in Section 4, Township 17 South, Range 32

East. We have water available in your area and are willing to furnish the necessary amounts to you at your plant site. If we may be of further assistance, please advise. Signed: Caproci Water Company, Roy Elliott".

Also, Mr. Nichols has been offered water from the Yucca Water Company, which has a pipeline nearby, so there is water available for the project. Mr. Nichols has water rights in the area. However, he is using very near his capacity, or his water limit in his existing flood, therefore, it will be necessary for him to seek outside water for this project.

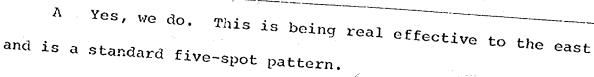


We propose to inject fresh water initially and we will always inject fresh water down the annulus. When we have sufficient volumes of produced water, we will then gather this water and reinject it down the tubing. We anticipate that our injection rates will be on the order of 400 barrels per day per well; and that our injection pressures will be on the order of 2,500 pounds at the surface.

The reason that we want to put all these wells on at the same time is that we're going to have to build a new plant for this area. We have two plants for the present area which are pumping at their limit. Also, we have to obtain a separate water source and guarantee a certain amount of water according to whatever contract is worked out. Therefore, we would request that we be able to begin injection in all six of these wells when and if this application is granted.

- Mr. Porter, were all of these exhibits prepared by you or under your direct supervision?
  - Yes, they were.
- Or received by you, in the case of the letter from Mr. Irby?
  - Yes, they were.
- From your study of this proposed expansion program, do you feel that the pattern, the proposed pattern will give an effective sweep for waterflood purposes?





It does conform in every respect to the pattern already established?

That's true.

Do you believe that the proposed pattern will protect correlative rights as to the leases affected?

Yes, it will. We have contacted the people to the north which was Santiago Oil and Gas. I understand they have changed their name or merged with someone; they have expressed an interest in converting their wells and Mr. Nichols has made them an offer to provide pressured water for them. To the west of this area, Continental Oil Company has production. However, their production is nearly all from the Lovington. I have not made a careful study of their wells, but having talked to some of their engineers, they tell me the upper zones from the Premier and Metex are nearly all pumped out over there.

MR. WATSON: The Applicant moves the introduction of Exhibits 1 through 10, and also Applicant's A, which is the letter from Jennings and White concurring in the application.

MR. UTZ: Without objection, Exhibit A and Exhibits 1 through 10 will be admitted into evidence in this case.

(Whereupon, Applicant's Exhibits 1 through 10 and Applicant's Exhibit A were admitted in evidence.)



# IN: DEPOSITIONS, REAKINGS, STATEMENTS, EXPERT TESTIMONT, DAILT COPT, CO

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### CROSS EXAMINATION

BY MR. UTZ:

- Q What is the Commission designation of this pool?
- A It's the Maljamar; it was formerly the Roberts, but the Roberts has been incorporated into the Maljamar for nearly two years, I believe.
  - Q Is this the Maljamar-Grayburg, is all this Grayburg?
- A Maljamar-Grayburg-San Andres, Lea County. There's some in Eddy County too.
- Q Metex and Premier zones, both zones are within the vertical limits of the Grayburg-San Andres Pool?
  - A Yes.
  - Q The name of this flood is Boller-Nichols?
  - A Yes, sir.
- Q How about the two, what is that, two, two and a half, two and three-eighths inch tubing that you are going to use to inject water down your injection logs, is that two or two and three-eighths?
  - A It's two and three-eighths O. D., two nominal.
  - Q Will that be coated internally?
- A We anticipate to coat it when and if we do inject salt water. What we would propose to do is to take selective wells and put all the salt water down the selective wells so that we could keep from having to coat all the tubing. The fresh



water out there is relatively non-corrosive, and hasn't given any problem in bare pipe.

Q In the event you inject corrosive water down the tubing you will have plastic coated or either coated --

A Yes, plastic coated or cement lined, or perhaps scmething else that will provide as good a protection, but it will be protected in some manner.

Q And you'll definitely inject fresh water down the casing tubing annulus?

A Yes, we have agreed to do that with Mr. Irby.

MR. UTZ: Are there other questions of the witness? The witness may be excused.

(Witness excused.)

MR. UTZ: Any other statements in this case?

MR. WATSON: The Applicant rests.

MR. UTZ: The case will be taken under advisement.



1120 SIMMS BLDG. . F. O. BOX 1092 . PHONE

STATE OF NEW MEXICO ss. COUNTY OF BERNALILLO )

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission Examiner at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 6th day of October, 1964.

Yeld Marile Notary Public - Court Reporter

My Commission Expires: June 19, 1967





### STATE OF NEW MEXICO

### STATE ENGINEER OFFICE SANTA FE

S. E. PEYNOLOS STATE ENGINEER ADDRESS CORPESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

It's a. I. Monther, D. . Socholets-Africator ( Oil Consulvacion Consult) Santa Yo, Was Hawloo

Dear Mu. Mogter:

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It is noted on the Oli Concernative United in the Case 2000 is no accountive United into Case 2000 is no accountive united date. I have patiently available the accivel of the copy of the application which rules and regulations require be sent to this office and none has arrived. I have no information on which to base judgment as to whether fresh maters which may exist in the area of this proposed waterflood would be contaminated. Therefore, this office objects to the granting of this application until buth time as I have had an opportunity to review the application and determine that the position of the State Engineer should be in this matter.

Yours to by

O. W. Raymolds

,

Water Rights Division

DOCKET MAILED

The second sections

P. O. Box 1180 Roswell, New Mexico September 29, 1964

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

Attention: Pete Porter, Executive Secretary

RE: LEONARD NICHOLS APPLICATION NO. 3100

Gentlemen:

The undersigned, James T. Jennings and Emmett D. White, being the owners of the No. 1 Federal Frances located in the SW4SE4 of Section 4, Township 17 South, Range 32 East, hereby concur in the application of Leonard Nichols for a waterflood extension of the existing waterflood project operated by Leonard Nichols in Sections 2, 3, 10 and 11, Township 17 South, Range 32 East, by the addition of six water injection wells to be located in Sectiens 4 and 9, which waterflood was originally authorized as the Boller-Nichols Waterflood Project, Roberts Pool, by Order No. R-1538.

When a satisfactory Unit Agreement or Cooperative Waterflood Agreement has been worked out, the undersigned will join Leonard Nichols in said project.

The undersigned hereby endorse the application of Leonard Nichols and request that the same be approved by the Commission.

Yours very truly,

E EXAMINER UTZ

RVATION COMMISSION

C MHATTING.

James T. Jennings

Emmett D. White

JTJ/mb

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| , •                      | S rol no                          | PSQ ●' į   | INVIII                                  | •                               | Rule Bitaylar, etal                                    | Stote   E-7177                                    | E 8162                                 | \$292 5181<br>8.84 31016 E.M.   | 2 (X-334)<br>2 (H) ∐       | 6-10-631<br>E-7177 Sign                   | Ello Belle T.                                | E PRI E-113                                    | E. 65, E-712                        | 3                          |
| REGE                     | THE STREET                        | - Date   | The fine the                            | 2112                            | Add days   | A STATE OF THE PARTY OF                           | 22 St. 2 6                             | 114 110000  | 324-619                    |   | Jana 1                                       | 6 m 2 ac                                       | NAME OF                             | Service of                 |
| 3                        | H.B.P. 0294                       | 36B  | Flood Contin                            | tentol<br>. 0294068             | Sontroge Six   | Geregien Contes<br>of Unites<br>of Tollangton     | H.L. Brin                              | san, Nicho  | list.                      | P 8                                       | illies<br>3610                               | Ph   | 111pg<br>13-3810                    | R Lt A)                    |
| 1                        | Cantil. 1<br>Mitchell             |  | 18 4                                    |                                 | (Sincloir Die)   | (Atlentic)  | L                                      | 103151<br>103151  | 3515171537                 |   | Pr. 18:25                                    | <b>.</b> .                                     | 1 1                                 | A 124 A                    |
|                          | 70 4157<br>01412 30 CO<br>U.S.    | !  | , U.S.WI                                | So Prote                        | Sin Coyler 943   | Santiagoctai%                                     |  | Pand<br>Pand  | 1/2000                     | <b></b>                                   | 1  | •′^  |                                     | 2 25 75<br>K-2223<br>17 22 |
| [{                       |                                   | ntil Summ  | National Second                         | 10 3e                           | .24 ic L.N   | ichols  | CSC !!                                 | L Nichols   | William !                  | <b>भन्न स्टब्स्ट</b>                      | 2- PARTIES -                                 | NenJaci  | C                                   | Will Co                    |
| 1                        | H.B.P.                            | Sill Sayer<br>Sill Sayer<br>Sill Sills<br>Water<br>Flood | due of the la                           | Allichell                       |  |   | (), e n Pan                            | ( C/A) 1/6  | · • [                      | Assoc SVR 42<br>(Willoughlin)             | "Kennedy"                                    | 1  | B.P.                                | H.B.P.                     |
|                          | 3 029406B                         |  | Wilcher 11435                           | 3 Tavalado                      | Pankm. Cial 6319 22 (Contil. Hea-                      | Esd.  | MAL                                    | JAMAŘ   |                            | L. Nichels                                | He T Kelasation)                             | PAIRIES 30                                     | -1510                               |                            |
| <u> </u>                 | U.S., Mi<br>Kyle W. Toylor, etal, | Same to  |   | a J.S., O                       | <u>.</u>   | Mifrance Sucher                                   | • 10                                   | William .   | 5 . <b>6</b> 5 [           | ♣a3 etaloi                                | Wichala !!                                   |  | L'Phillips                          | H.E                        |
| ألخ نوا                  |                                   |  | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1   | A STILL STIES                   | AYUR 7. J.   | ylat. etal. S                                     |  | L Nichols   |                            | (0h a)                                    | tote teets                                   | <del>}</del>                                   | : 1919                              | 3-2                        |
| 1358                     | Continental (65)                  | L Surses<br>15/watcher                                   | Centinental L                           | .Nichola,e1e1<br>064149         | L. Nich  | ols can   | 283                                    | • ' 💠 ' •   | 1 •1                       | #1 \$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |  |  | B-155                               | Grig<br>Brig               |
|                          | 029/068                           | Water Fleod  | 058775                                  |                                 | (1515712<br>(Lowe [Pankm, 81)                          | (losio)   | (0810)                                 | .3,   | EPanam.59)                 |   | A A A I (Malses)                             | N:   | "0"<br>ET-3                         | 195                        |
| i i                      | <b>d</b> 1                        | 3.545 C.   | 1 :                                     |                                 | illes-Fed  | Likiche's, of a                                   | •LH :                                  | •   | <i>b</i>                   | (3,110)                                   | 1 9 Your                                     | •23 •25  | 21                                  | Se Tr                      |
| 18                       | AUE 3                             | Ú.S., MI   | l                                       | f,                              | U.S., Mi   | 9 11116   | CNICAS S<br>Pan Am T                   | V0₁₀£   |                            | L. Nichols                                | Minad I                                      |  | المعتبسم مد12ء                      | 8 2:                       |
| - 1                      | Continente<br>H.B.P.              | 2!   | Continental (                           | *8*                             | L. Nichols<br>0315712<br>(Line C.)                     | • •   | S-21-63                                |   | 27                         | Apies Locates                             | 1 0100 010                                   | Signification (PA                              | spilosifere (raillion)              | Sant<br>Pajsis             |
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| L                        | U.S., MI                          |  | 1                                       | •t •i                           | t ett  | 03157112 5  | VS. W. 1                               | .⊙'!'   | •27                        | 4.ξ •31                                   | 5 .  | , e13 e14                                      | 415 <b>4</b> 16                     | 3 3 7                      |
|                          | J. Will Tayle                     |  | U.S                                     | To Contl                        | U.S.   | egrew ray er, erai                                | ( × / / / / ·                          | 397950,3.   |                            | A.C. Taylor, et                           | W.B. Trimble                                 |  | Store                               | 8-2516                     |
| نزر<br>اگراؤ             | The court Leading                 |  | -\$-12 € 000                            | to: Confit                      | Contli   | Continental 88                                    | SSI OS4                                |   | tinental<br>asssse         | (Ohio)'<br>2c H.B.P.                      | Continental et a                             | 1855in (23                                     | gging 5                             | -4                         |
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| ·                        | e Hitis                           | Teress 218   |   | 13-8                            | • • • • • • • • • • • • • • • • • • •                  | ALL THE   |  |   | Nichols 🧖                  | 1.0                                       | 1 7-2x 381                                   | k • > •zı n 6                                  | 5 1 6 7 6 8                         | Se Tr.                     |
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| • <sup>6</sup>           | 21.6                              |  | 111 es es                               | nin (133)                       | •  |   | , O.,                                  | 3 6 <sup>73</sup>   | 74 • 75                    | 75.0                                      | 78 79  | 1 65' n e)                                     | • **                                | 3<br>3<br>15               |
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|                          |                                   |  |   | ● <sup>172</sup>                | PEAR   | SALL  | 1                                      | 183   | 75 AZTA                    | Viller 20                                 | are Allentifair                              | L  | 1849 2 184 2 1                      | Boart                      |
| •"[                      | 217 318 217 Simin                 | 2)6 •2)  | 2:4 2:3;                                | ± 212 € 21                      | 210 02   | 13 ⊕ 208 ⊕ <sup>24</sup><br>0/35                  | 200                                    | ***********   | 201                        |   | A 43,545                                     |  | Miller                              |                            |
|                          |                                   | CONTRACTOR .   | 4                                       | Secret Children                 | - <b>k</b>   | U.S   | <del></del>                            | 1915<br>1916 1  | Calet.                     | Comp (Cillege)                            | S Debos                                      | -  | Carper .                            |                            |
|                          | 81.1                              | 16 4419  | Fen Au ) Pan An)                        | Kersey & Co                     | <b>ે</b> કે  | enfil Pan Am                                      | •2                                     | • ' ' '   | 1 3 K                      | I R.B.P.Y                                 |  | •  | 1 1 2 2 2 2                         |                            |
|                          | Corper Del                        | A.   | Gulf                                    | Kirseyl Co                      | Pan Amer   | Ale USA-Leve                                      | 1 67,                                  | - A 6545  | 2) ( mg/ gr.g              | 0586988                                   | 0584078                                      | Corper Dula<br>8-4113                          | B-4113 B-41                         | 33 8 2 14 7                |
| Sacand<br>Madii<br>Matii | il                                |  | 1-11-45                                 | Franke 10                       | ધિકાં જે   | · 4,  | •,                                     | 2012  |                            | Centil.                                   |  | 1_   | Corper Core                         | 1                          |
| 29.5                     |                                   | 5  |   | Z Yoles Pet.                    | (Kewaner)  | 33  | لبهرا                                  | "Banesall   |                            | Pan Amer                                  | 35   | "Highson etg"<br>1 February<br>2 State         |                                     |                            |
|                          | Pon Amer                          | Pan In<br>Section  |   | का शुक्त का<br>हा जातर होता है। | • Canti  | \$ \$   | 9.22                                   | -59 11.3  | 50 5-11-55<br>110 06365    |   | Hudsen &                                     |  | Drig. Drig.<br>H.B.P. H.B           | V.8 Ver                    |
|                          | 1-1-640303428  <br>               | ,  | 1 5                                     |                                 | 'AY'   | Sec. 11   |  | פיני ק  | inio Shaw                  | A Cuck Surn                               | 12 7 - 54                                    | 143 610  | H.B.P. H.B<br>B-4113 B-4            | 113 72 14 75 -             |
|                          |                                   | *" <b>`</b>  | Antweil, et al.                         | 4.                              |  | )   | Seeding!                               | Sales: J  | 9-22-59                    | 455                                       | U.S., M                                      | To the second                                  |                                     |                            |
| 22222                    | 0.3.                              | ; 13 151<br>2. 37272                                     | , Sio                                   | 774                             |  |   |  | 2772  | អមារ<br>2 មុ <i>ជមា</i> ន  | THE THE THE                               | Store, S                                     |  | Store                               |                            |
| 12 07                    | (Corper Drig)                     | 7" A 64 (3)  |   | Ambassador                      | Ambossoder<br>AA 01                                    | iss Pearsollfe<br>061840                          | 9-2                                    | .59   | on Amer.<br>HBP            | 1 0                                       | hio  | Pure it  |                                     | \$2 <b>3</b> - 73          |
|                          | ii mini :                         | 0146923  | Tillist Liber Bel                       | <b>19</b> 7                     | 1 % 17   | 061840  | Reading                                | 190,61 / 1  | 1                          | 1 . "                                     | il i   | WHY WAS  | M 2 2 1 1 2 1 2 1 2 1 2 2 2         | भे नहीं ।                  |
|                          |                                   |  |   |                                 |  |   |  |   |                            |   |  |  |                                     |                            |

P. D. Con 1343. Artemia, You Conico. 29 September 1964

V.S.G.B., Hobba, New Mexico.

Contlemen:

Reference is sade to dase to. Allo, the application of Leonard Fichols for an extension of a water field in Las County, New Texaco, to include six additional injection wells as follows:

| Taylor 8 #1 | 2-4-17-32 |
|-------------|-----------|
| 11es /13    | J-6-17-32 |
| Ilos #15    | 1-4-17-32 |
| Ilen /16    | 1-h-17-32 |
| 1108 /20    | 0-9-17-32 |
| fice \$21   | 8-9-17-32 |

I submit herewith exhibits showing the lands and the proposed injection pattern, along with well completion and production date and the proposed injection well completions.

Injection will be into the Metex and Presier Zones of the Grayburg Formation, as shown in the log of fles #13. A packer will be set between these zones with injection down the annulus and tubing. The State Engineer has approved this method (a copy of his latter is attached) providing that only fresh water is injected down the annulus.

The plat shows the location of the injection wells and present ownership. A Pooling Agreement is being prepared to pool the working interest in the Leonard Sichola and the Jennings & White acreage to the end that the ownership of the working interest in these tracts will become the ease.

We would appreciate your consideration of our plan and a letter of approval. Please call me at 746-9867, Artesia, New Mexico, if you have further questions concerning this Application.

Very truly yours,

OIL SONSERVATION COMMISSION

CASE NO. 3100

LEOVARU NICHOLS

N. D. Porter, Agent.

# LEONARD NICHOLS and JENNINGS & WHITE OIL PRODUCTION DATA - GRAYBURG ZONE

|                            | No. Wells                             | Production, bbls.                                     | Average, B/W/D                                |
|----------------------------|---------------------------------------|---|---|
| 1960                       | 5                                     | 6569  | 14.6 (3 mos.)                                 |
| 1961                       | 10                                    | 88703   | 24.3  |
| 1962                       | 10                                    | 74331   | 20.3  |
| 1963                       | 10                                    | 34005   | 9.3   |
| 1964                       | • • • • • • • • • • • • • • • • • • • |   |   |
| J<br>F<br>M<br>A<br>M<br>J | 10<br>10<br>10<br>10<br>10<br>10      | 2126<br>1888.<br>2072<br>2156<br>2240<br>2067<br>2050 | 6.9<br>6.5<br>6.7<br>7.2<br>7.2<br>6.9<br>6.6 |
| J                          | 10                                    |   |   |

Total Production thru July, 1964 218207 barrels.
Average recovery thru July, 1964 21820 bb1/well.

| EXHIBIT I | NO. |  |
|-----------|-----|--|
|-----------|-----|--|

OLE COMSERVATION COMMISSION

CASE NO. 2100

Mr. A. L. Porter, Jr. Secretary-Director Oil Conservation Commission Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Leonard Nichols which seeks authority to convert the following wells to injection wells:

| Tay       | lor "B" #1 | P-4-17-32 |
|-----------|------------|-----------|
| Ile       | a #13      | J-4-17-32 |
| , lè      | #15        | L-4-17-32 |
| . 14      | #16        | N-4-17-32 |
| н         | #20        | D-9-17-32 |
| <b>11</b> | #21        | B-9-17-32 |

This office offers no objection to the granting of this application, provided injection is accomplished in the manner set forth in the letter of Mr. H. C. Porter dated Sept. 18, 1964 and shown on the diagrammatic sketch, copies of which are hereto attached.

cc-Watson & Watson

H. C. Porter

F. H. Hennighausen

Yours truly,

S. E. Reynolds State Engineer

Bye

Frank E. Irby Chief Water Rights Div.

8

P. O. Box 1343 Artesia, New Moxico September 18, 1964

Mr. Frank E. Irby, Chief Water Rights Division State Engineer's Office Santa Pe, New Mexico

> Re: Leonard Nichols Application to expand the Maljamar Water Flood, Lea County, New Mexico

Dear Mr. Irby:

An application has been filed with the Oil Conservation Commission for an expansion of the Leonard Nichols Water Flood to include six injection wells in Sections 4 and 9, T175, R325, as follows:

| Tay!      | lor "B" #1  | P-4-17-32 |
|-----------|-------------|-----------|
| Iles      | s #13       | J-4-17-32 |
| 11        | <b>₽</b> 15 | L-4-17-32 |
| <b>§3</b> | #16         | N-4-17-32 |
| Ħ         | <b>#20</b>  | D-9-17-32 |
| Ħ         | #21         | B-9-17-38 |

Injection will be into the Meter and Premier zones of the Grayburg formation, as shown in the log of Iles \$13, which is attached. A packer will be set between the Meter and Premier zones (as shown in the schematic drawing) with injection down the annulus and tubing. As we have agreed in other wells, only fresh water will be injected down the casing (annulus).

The wells have surface casing set at 350° and comented to the surface. The production string is set through the pay zones and cemented with 350 sacks (or as otherwise shown on the well data exhibit). There is sufficient cement and casing to properly protect any fresh water which may be present in the area.

The area is not within a water basin. A plat is enclosed showing the location of these wells.

| BEFORE    | <b>EXAMINER</b>                  | UTZ          |
|-----------|----------------------------------|--------------|
| OIL CONSE | WATION COMM                      | NISSION      |
| uppl 1    | WATION COMM<br>EXHIST NO<br>2100 | <del>/</del> |
| CASE NO.  | 2100                             |              |

mately to A.

I will cast on you to turcher discuss this application prior to use nearing. If there are any further quantions, please call no at 740-3600, Arresta.

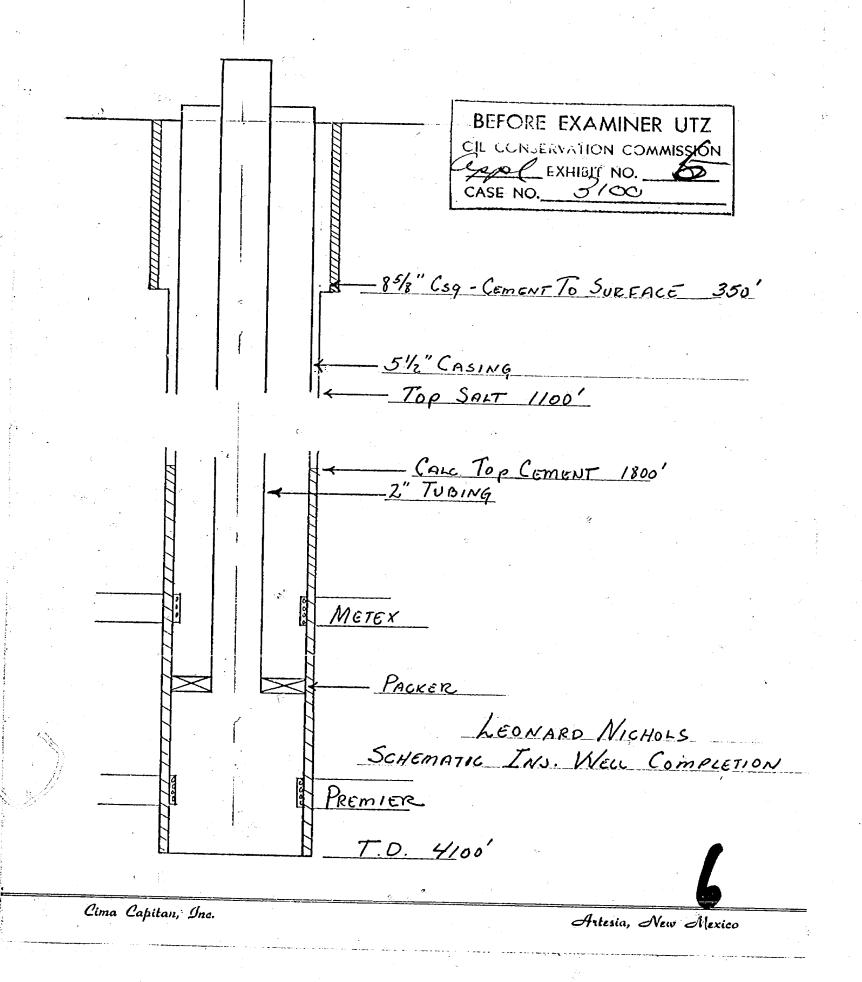
Very truly yours,

LECTION MICHOLD

Hal C. Parlor, agant

Hop: "D Bro.

ميه آيا بي



| 4000                                       | 4.7         | 4016   | 4060 | None                    | 03460  | 3860-70,3898-3900, ,1460<br>3970-90                                 | 5-1/2 @ 4060<br>w/350 sx | 8-5/8 @ 294<br>w/200 sx | 12-8-61        | B-9-17-32 | Iles #21        |
|--|-------------|--------|------|-------------------------|--|---|--------------------------|-------------------------|----------------|-----------|-----------------|
|  | 128         | 3984   | 3990 | 30 MGRO & 57M# Sand     | 2490   | 3796-3802,3820-36,<br>3854-60,3940-50                               | 5-1/2 @ 3990<br>w/350 sx | 8-5/8 @ 302<br>w/200 sx | 8-8-61         | D-9-17-32 | Iles #20        |
| 0 3000<br>0 3000                           |             |        | 4020 | 30 MGRO & 30M# Sand     | 2520   | 3848-58,3866-84,<br>3901-10,3962-76,                                | 5-1/2 @ 4020<br>w/350 sx | 8-5/8 @ 293<br>w/200 sx | 7-29-61        | C-9-17-32 | Iles #19        |
| (N)<br>(s)<br>(s)<br>(s)                   | 110         | 4097   | 4015 | None                    | 23/5   | 3844-50,3864-74,<br>3898-02,3936-40,<br>3944-48,3956-66             | 5-1/2 @ 4015<br>w/400 sx | 8-5/8 @ 292<br>w/200 sx | 11-19-60       | M-4-17-32 | Iles #17        |
| <b>~</b> (3                                | 90          | 4101   | 4030 | None                    | ()<br>()<br>()   | 3878-84,3903-09,<br>3970-74,3978-82,<br>3990-4000                   | 5-1/2 @ 4030<br>w/400 sx | 8-5/8 @ 293<br>w/200 sx | 11-12-60       | N-4-17-32 | Iles #16        |
| 8  | N           | 4105   | 0104 | None                    | 2360   | 3856-66,3886-90,<br>3914-18,3953-57,<br>3978-88                     | 5-1/2 @ 4010<br>w/400 sx | 8-5/8 @ 287<br>w/200 sx | 11-11-60       | L-4-17-32 | Iles #15        |
| 2000                                       | 115         | 4171   | 4100 | 20 MGRO &<br>40 M# Sand | 2400   | 3954-64,4009-15,4049-53,4071-81,                                    | 5-1/2 @ 4100<br>w/400 sx | 8-5/3 @ 302<br>w/200 sx | 12-5-60        | I-4-17-32 | Iles #14        |
| 27000                                      | ა           | 4157   | 4209 | 30 MGRO & 60M# Sand     | 000  | 3426-30,3948-54,<br>3975-81,4014-18,<br>4038-48,4162-66,<br>4180-86 | 5-1/2 @ 4200<br>w/450 sx | 8-5/8 @ 308<br>w/200 sx | 9-25-60        | J-4-17-32 | Iles #13        |
| (V) (S) (S) (S) (S) (S) (S) (S) (S) (S) (S | (M          | 4140   | 4189 | 30 MGRO &<br>70M# Sand  | A STATE OF THE STA | 3884-94,3914-18,<br>3942-46,3955-57,<br>3980-86,4146-52,<br>4004-14 | 5-1/2 @ 4189<br>w/450 sx | 8-5/8 @ 313<br>w/200 sx | 9-2-60         | K-4-17-32 | Iles #12        |
| 20 000                                     | 5           | 4150   | 4090 | 23 MGRO & 31M# Sand     | 23740  | 3912-27,3966-70,<br>3977-81,4014-18,<br>4036-46                     | 5-1/2@ 4090<br>w/400 sx  | 8-5/8 @ 308<br>w/200 sx | 12-14-60       | P-4-17-32 | Taylor B #1     |
| Cum.<br>Prod.                              | I.P.<br>B/D | Eleva- | T.D. | Treatment               | Top<br>Cement  | or upen Hole  | Proving Mon              | Surface<br>Casing       | Compl.<br>Date | Location  | Lease & Well    |
|  |             |        |      |                         |  | TION COMMISSION   | BEFORE EX                |                         | NICHOLS UNIT   | 1         | LEONARD NICHOLS |

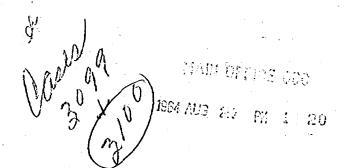
| Jennings &<br>Ware #1    | Iles #24  | Iles #22                                     | Lease & Well             |
|--------------------------|---|--|--------------------------|
| 0-4-17-32 12-9-60        | L-4-17-32   | M-4-17-32                                    | Location                 |
| 12-9-60                  | 3-26-62   | 3-13-62                                      | Compl. Date              |
| 8-5/8 @ 318<br>w/174 sx  | 8-5/8 @ 297<br>w/200 sx                                 | 3-13-62 8-5/8 @ 293<br>w/200 sx              | Surface<br>Casing        |
| 5-1/2 @ 4038<br>w/400 sx | 5-1/2 @ 4024<br>w/350 sx                                | 5-1/2 @ 4118<br>w/350 sx                     | Production<br>Casing     |
| 3898-3916,<br>3978-4002  | 3848-58,3906-10,<br>3916-20,3930-34,<br>3970-80,3947-57 | 3828-34,3917 <b>-</b> 29<br>4074 <b>-</b> 90 | Perforation or Open Hole |
| N<br>00<br>00<br>00      |   | 2618   | Calc.<br>Top<br>Cement   |
| 2339 30 MGRO & 13M# Sand | 2527 30 MGRO & 60M# Sand                                | 25 MGRO & 50M# Sand                          | Treatment T.D.           |
| 4036                     | 4118  | 4118   | •                        |
| 4036 4140                | 4118 4115   | 4092   | Eleva-                   |
| - 52<br>T                | 1 0<br>1 0<br>1 0                                       | 8  | B/D                      |
| N 60                     | 0000  | 1000   | Cum.<br>Prod.            |

Page 2

|                |  |                               |                        | <u> </u>        |      |            |           |              | <u> </u>        | 8               | 77           | •                | •               | 1                        |            | 7                |
|----------------|--|-------------------------------|------------------------|-----------------|------|------------|-----------|--------------|-----------------|-----------------|--------------|------------------|-----------------|--------------------------|------------|------------------|
|                |  | • •                           | <b>●</b> <sub>(3</sub> |                 | •_   |            |           |              |                 | • <sub>3</sub>  | È            | •.<br>•          | •               | 2<br>4 C 744104<br>ET 4. | •,         | į                |
|                | :  | *.                            | Cantinental            | u s.            | •_   |            |           | <i>j</i> 25. | * 4 . 5 . 5 . 5 | • :             |              | ,                |                 | •                        | ••         | Santiago Oil     |
|                |  | ō<br>• <b>,</b><br>• <b>,</b> | *n101                  | ý.              | ٠.   | •-         | 9         |              | <br>            | Lronard Nichols | 00           | Jennings & White | Leonord Nichols | <b>↑</b>                 | <b>*</b> . | a 603            |
| <del>-</del> . | ⊕ • • •  | • 4                           |                        |                 | •,   |            |           | <b>\$</b> _  | ·               |                 | ac 141.08    | <del></del>      | }               |                          | •.         |                  |
|                | Out the same act   |                               | Emperor                |                 |      | A C FAILOR | *         |              | -               | •,,             |              | 5                | <u>.</u>        | !<br>:<br>:              |            | Cima             |
|                |  |                               | eror Oil               |                 |      |            |           | •            | i               | 1.2000          |              | •,               | , co            | •-                       |            | Cima Capitan Inc |
|                |  | <del></del>                   | Leonard                | U.S.            |      | "nes"      | ō<br>,,,, | • 3          |                 | Leonard Nichals | 0.5          | ·                | Leonard Nichals | <b>(4</b>                |            | L. Nichola       |
| - CASE         | BE BE  | <b>N</b>                      | lichals et al          |                 |      | • 27       |           | • •          |                 | •               | •            | •,               | •8              | •= .                     |            | Sannage          |
| 7              | BEFORE I   |                               |                        | 40.74           | •;   |            |           | • -          |                 | •;              | ţ            | •                | Leonard N       | t •-                     | <u> </u>   |                  |
|                | CONSERVATION COMMISSION EXHIBIT NO.                          |                               | Leonord NChols         | AC TATION ET AL | • ,  | •          |           | • • • •      |                 | ⊕ I             | (puit, 1881) | •_               |                 |                          | f d        | 2                |
|                | MINER<br>ON COMM   | <b>5</b>                      |                        |                 |      | ••         | <b>=</b>  | •            | • •             | Leonard Nichols | STATE:       | •                | •               | 22                       |            | hillips          |
|                | UTZ  |                               | Continental            | WE TRIMBLE      |      | •          | e e       | •            |                 | •.              | (65.00)      | •, .             |                 |                          | 7.         |                  |
| m<br>Ě         |  | ••.                           | • c                    |                 | •.   | • •        |           | • ,          |                 |                 |              | • <u> </u>       |                 |                          | . *        | 1                |
| EXHIBIT "A"    | PORTION MALJAMAR FIELD LEA COUNTY, NEW MEXICO SCALE : "1900" | •                             | <br>•.,                |                 | • 10 | •.         |           | . •,         |                 |                 |              | •.               |                 | ₹*                       |            |                  |
|                | MALJAMAR FIEL COUNTY, NEW MEXICO                             | &                             | Sontrago               | STATE           | •,   | s.<br>●g   | Santiago  | •            |                 | Tekono          | STATE .      |                  |                 | -                        | i''        | Prof. 194        |
|                | <u> </u>   | <b>₹</b> .                    | · ·                    |                 |      | - 3        | 1         | Tige 1       | -               |                 |              |                  |                 |                          | \$         |                  |
|                |  | ••                            | • =                    |                 | •,   | •          | ·         | •;;          |                 |                 |              | •                | <del></del>     | - <del></del>            | <b>0</b> % | +                |
|                |  |                               |                        | 1,40,46         | •    | •          |           | • 5          | 56.255          | terson Alberta  |              |                  |                 |                          |            |                  |
|                |  | -                             |                        |                 | e,   |            |           | •,.          |                 | •.              |              |                  |                 |                          |            |                  |

| ٢ |     |                |                       |                  |                               | 8  | <del></del>  |                   |                           |                |                 | ·                                       |              |              |   |                 | 9 32-ř          | 6+33-E       |
|---|-----|----------------|-----------------------|------------------|-------------------------------|--|--------------|-------------------|---------------------------|----------------|-----------------|---|--------------|--------------|---|-----------------|-----------------|--------------|
|   | •,  |                | Santiago (            | Dil 8. Gqs<br>Ø  | •3                            | Cima Co  | outon inc    | L. Nicho's        | Sent-ago                  |                | Phili           | ·p3                                     |              |              | Phy.  | ·ps             | ws.<br>O        | 27.7         |
|   | ٠   | <b>!</b>       | •¹                    | •3               | •²                            |  | •            | E<br>[<br>[<br>5  |                           | t t            |                 |   |              |              |   | -               |                 |              |
|   | 2.  | A C TAYL       |                       | ard Nichols      | *                             |  | Leons        | .3<br>ird Nichols | Ĺ                         | Leonard Nic    | nois            | 2                                       | Nps          | -            | !   |                 | \$ <del>Q</del> |              |
|   | •   | , ()           | • <sup>(2</sup>       | Jennings & White | L. Nichols                    | •**  | • <b>3</b> 1 | <b>6</b> 8        | •30                       | 21.0           | •2              | • · · · · · · · · · · · · · · · · · · · |              | ·<br> <br> - |   |                 |                 |              |
| Ţ | •** | 7<br>N.Y. 63 2 | e³ <sup>6</sup><br>™a | US SMICKES       | ●<br>"B"<br>AC TAYLOR         | •10  | •            | o.s               | • <sup>5</sup>            | egit<br>tem, d | • sr sr         | •<br>                                   | ÷            | <b>1</b>     | <b>•</b> 3<br>- <i>(enc.</i><br>\$7:            | :.(P\$)<br>cl.E | <b>*</b>        |              |
| s | •*  | 0              | Lean                  | ard Nichols      | l<br>[<br>]                   | •²   | Leanari      | d Nichals         | •3                        | • -            | Leanard         | N-chats                                 | •            | 9"           | Tes   | oç <b>a</b>     |                 | Lensa Nicins |
|   | L   |                | 24-13157              |                  | į<br>· →                      | L N chots i  | •3           | . e <sup>25</sup> | 26 <b>4</b><br><b>◆</b> # | 1- <b>G</b>    | •               | . •                                     | •²           | -            | 12  | . •             | •               | A Serrison   |
|   |     |                |                       | 9                |                               |  | •            | 10                | 21                        | 5.3            | -               | i<br>ii<br>!                            |              |              | Santi   |                 |                 |              |
|   |     | • •            |                       | •                |                               | A C TAYLOR   | 4            | *ILES**           |                           | E-2            | \$              |   | <b>-</b>     | • **<br>     | •   | •               | •               | •            |
|   | •   | :<br>          | •"                    | us.              | <b>∳</b> 5                    |  |              | υ s.              | ·                         | E-4  AC TAYLOR | €:-3<br>• E! AL | ***                                     | TRIMBLE      | •            | 2<br>572  | • ÷             | • <b>3</b>      | • STATE      |
|   | •   |                | €oni<br>•             | 6<br>•           |                               | Empero   | r Oil        | Leonard h         | dictiols et al            | Leono          | rd Nichols      | Confi                                   | neafal .     | 6            | Sant<br>•                                       | •               | •               |              |
|   | / 3 | ***            | *                     | # <sup>*</sup>   | 7                             |  |              | <br> <br> <br>    | * *                       | e<br>E         |                 |   |              | . 5          | •   | 5               | ••              | a d          |
|   | •   |                | 4.                    |                  | # 40<br>♦ 00<br>• 40<br>— — 9 | C VELL  1979 SELL  1979 SELL  197 WELE  198 SELL  197 WELE  197 WE |              |                   | BEFO                      | DRE EX         | ATION !         | COWWI                                   | JTZ<br>SSION | LE           | ION MÁLJAMA<br>A COUNTY, NEW<br>SCALE : (*-100) | IR FIELD        |                 |              |

The state of the s



P. O. Drawer 1343 Artesia, New Mexico August 20, 1964

New Mexico Oil Conservation Commission Santa Fe, New Mexico

Attn: Mr. Dan Nutter

Dear Mr. Nutter:

Confirming our telephone conversation of yesterday, please place on the September 9, 1964 docket the following applications:

- 1. Application of Leonard Nichols, Dallas, Texas, and Jennings & White, Roswell, New Mexico, for approval of the West Maljamar Unit Agreement. The unitized lands will be fee and federal lands to wit: S/2 Section 4 and N/2 NW/4 and NW/4 NE/4 Section 9, T17S, R32E, Maljamar Pool, Lea County, New Mexico. The unitized depths will be down to and including the Lovington zone of the San Andres formation.
- 2. Application for an extension of the Boller-Nichols Water Flood Project to include six additional water injection wells on the above mentioned acreage under rule 701.

If there is any further information which you may require prior to the hearing, please call me at SH6-9867, Artesia.

Very truly yours,

cc: Neil Watson
Leonard Nichols
James Jennings
State Engineer

U.S.G.S.

M. C. Porter Jos dernard Nichols

DOCKET MAILED

Date 9-18-64

Mr. A. L. Porter, Jr. Secretary-Director Oil Conservation Commission Santa Fe, New Mexico

Dear Mr. Porter:

It is noted on the Oil Conservation Commission docket No. 24-64 that Case 3100 is to be heard on this date. I have patiently awaited the arrival of the copy of the application which rules and regulations require be sent to this office and none has arrived. I have no information on which to base judgment as to whether fresh waters which may exist in the area of this proposed waterflood would be contaminated. Therefore, this office objects to the granting of this application until such time as I have had an opportunity to review the application and determine what the position of the State Engineer should be in this matter.

Yours truly,

S. E. Reynolds State Engineer

Frank E. Irby

Chief

Water Rights Division

FEI/ma cc-F. H. Hennighausen

#### DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 30, 1964

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

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

CASE 3099: (Continued from the September 9, 1964, examiner hearing).

Application of Leonard Nichols for a unit agreement, Lea County,
New Mexico. Applicant, in the above-styled cause, seeks the
approval of the West Maljamar Unit Area comprising 440 acres
more or less, of Federal and fee lands in Sections 4 and 9,
Township 17 South, Range 32 East, Lea County, New Mexico.

CASE 3100: (Continued from the September 9, 1964, examiner hearing)

Application of Leonard Nichols for a waterflood extension,
Lea County, New Mexico. Applicant, in the above-styled cause,
seeks approval of the extension of the waterflood project
which he operates in Sections 2, 3, 10, and 11, Township 17
South, Range 32 East, Maljamar Pool, Lea County, New Mexico,
by the addition of 6 water injection wells in Sections 4 and
9, same township. The original flood was authorized as the
Boller-Nichols Waterflood Project, Roberts Pool, by Order No.
R-1538.

CASE 3107: Application of Texas Pacific Oil Company for temporary special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of temporary special pool rules including a provision for 80-acre spacing for the North Bagley Middle Pennsylvanian Pool in Township 11 South, Range 33 East, Lea County, New Mexico.

CASE 3108: Application of Monsanto Company for a dual completion, Eddy County, New Mexico. Applicant, in the above styled cause, seeks approval of the dual completion (conventional) of its Dagger Draw Well No. 1, located in Unit O of Section 6, Township 20 South, Range 25 East, Eddy County, New Mexico, to produce ges from the Strawn and Morrow formations through the casingtubing annulus and through tubing, respectively.

CASE 3109: Application of Phillips Petroleum Company for a non-standard gas proration unit and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an 80-acre non-standard gas proration unit comprising the E/2 SW/4 of Section 35, Township 17 South, Range 34 East, Lea County, New Mexico, to be dedicated to its Hale Well No. 11 to be completed in an undesignated Yates gas pool at an unorthodox location 1980 feet from the South line and 2310 feet from the West line of said Section 35.

CASE 3110: Application of George L. Buckles Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Langlie-Mattix Pool by the injection of water into the Queen formation through two wells at unorthodox locations on its Jamison Lease in Sections 21 and 22, Township 24 South, Range 37 East, Lea County, New Mexico.

Page - 2 - September 30, 1964 examiner hearing

- CASE 3111: Application of Cities Service Oil Company for the expansion of a waterflood project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand the Drickey Queen Waterflood Project, Caprock Queen Pool, by the conversion to water injection of two wells in Units F and H of Section 22, Township 14 South, Range 31 East, Chaves County, New Mexico.
- CASE 3112: Application of Continental Oil Company for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to install dual-flow downhole commingling equipment in its dually completed Jicarilla 28 Well No. 1, located in Unit J of Section 28, Township 25 North, Range 4 West, Rio Arriba County, New Mexico. Said well is a Gallup-Dakota oil-oil dual completion.
- CASE 3113: Application of BCO, Inc. for a unit agreement, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks approval of the Escrito Gallup Pool Unit Area comprising 3123.88 acres, more or less, of state and federal lands in Township 24 North, Ranges 7 and 8 West, San Juan and Rio Arriba Counties, New Mexico.
- CASE 3114: Application of BCO, Inc. for a waterflood project, San Juan and Rio Arriba Counties, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Escrito Gallup Oil Pool in its Escrito Unit Area by the injection of water into the Gallup formation through three wells located in Sections 17 and 18, Township 24 North, Range 7 West, and Section 12, Township 24 North, Range 8 West, San Juan and Rio Arriba Counties, New Mexico.



## STATE OF NEW MEXICO

### STATE ENGINEER OFFICE SANTA FE

S. E. REYNOLDS

September 23, 1964

ADDRESS CORRESPONDENCE TO: STATE CAPITOL SANTA FE, N. M.

87501

Mr. A. L. Porter, Jr. Secretary-Director Oil Conservation Commission Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Leonard Nichols which seeks authority to convert the following wells to injection wells:

| Tay | lor "B" #1 | P-4-17-32 |
|-----|------------|-----------|
| Ile | s #13      | J-4-17-32 |
| 11  | #15        | L-4-17-32 |
| n   | #16        | N-4-17-32 |
| R   | #20        | D-9-17-32 |
| 11  | #21        | B-9-17-32 |

This office offers no objection to the granting of this application, provided injection is accomplished in the manner set forth in the letter of Mr. H. C. Porter dated Sept. 18, 1964 and shown on the diagrammatic sketch, copies of which are hereto attached.

Yours truly,

S. E. Reynolds

State Engineen

Frank E. Irby

Chief

Water Rights Div.

FEI/ma encl.

cc-Watson & Watson

H. C. Porter

F. H. Hennighausen

06

La Carlo Carlo Grand

P. O. M. C. M. C.

Me. Presit M. Leby, Chile? Water Highto Odvision . Stage singune of a Office Santa Me, Men Maxico

> Re: Leonard Richels Application to expand the Maljamar Water Floor, Lea County, New Maxies

Dear Mr. Irby:

An application has been filled with the Oak Conservation Commission for an expansion of the Leonard Nichols Water Flood to Include sin lajeration wells in Sections 4 and 9, TI7S, R32E, as follows:

| Tayl | or "B" #L    | P-4-17-32  |
|------|--------------|------------|
| Iles | #13          | J-4-17-30  |
| 11   | #15          | 1.4-17-32  |
|      | #18          | K-4-17-92  |
| и    | <i>:</i> #20 | D-9-17-32  |
| 11   | #21          | 13-5-17-52 |

Injection will be into the Merox and Premise comes of the drayburg formulate, as smear in the logs of lies #13, which is attached. A pocker will be set between the Meter and Premier zones (as shown in the senematic drawing) with injection down the annulus and tubing. As we have agreed in other wells, only tresh wayer will be injected down the casing (annulus).

The wells have surface assing not as 350; and comented to the surface. The production so ding to set through the pay notice and dementer with the sacks (or as otherwise shown on the well data assittle). There is nairie cient, cement the country to properly proceed any tresh water which may be present in the area.

The area in hel within a wayre basin. A plat is enclosed showing the legacian of these region.

---

Mr. Frank E. Indy

September 13, 1954

The top of the salt in this area is approxi-

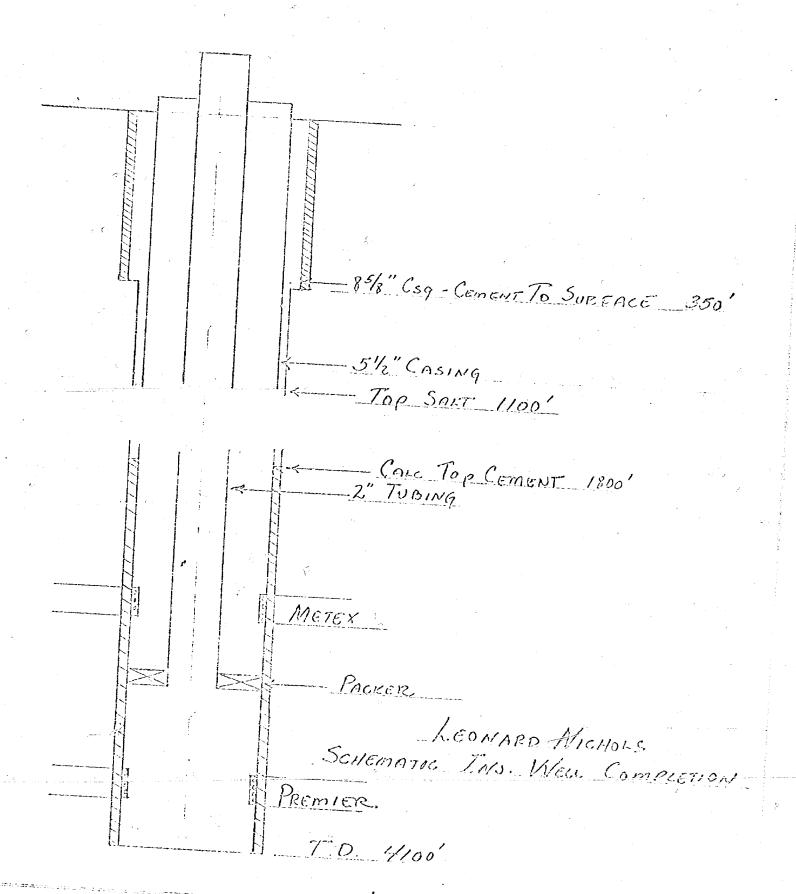
I will call on you to further discuss this application prior to the bearing. If there are any further questions, placed call me at 700-9806, Apleaia,

Very truly yours,

LEONARD MICHOLS

Hal C. Porter, Agent

HCP: jb



Cima Capitan, Ang.

Arteria, New Mexico

Cans 3100
Naved 9-30-64
Res. 10-1-64
Leant Leonard Michols an extendion of
theirs Maljaman Waterflood. & approve
6 additional injection wells as fellows:

Michols Daylor' B' #1 P-4-17-32

Les #13 S-4-17-32

Michale-Daylor'B' #1 P-4-17-32

Les #13 &-4-17-32

L #15 L-4-17-32

L #16 N-4-17-32

L #20 D-9-17-32

L #21 B-9-17-32

2. Duting must be coated against. corrosion and Dreak water only to be injected down the annulus.

Thurst It

<u>DRAFT</u> JMD/esr Send the house of the best of the conservation commission

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

CF Subj.

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

Jan Mar

CASE No. 3100
Order No. R- 2777

APPLICATION OF LEONARD NICHOLS FOR A WATERFLOOD EXTENSION, LEA

COUNTY, NEW MEXICO. -> The Expansion of A Waterflood from

ORDER OF THE COMMISSION

### BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 30, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz

NOW, on this <u>day of October</u>, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

#### FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- of the Natural Project, which, he populates, in Sections, 2, 3, 10, NMPM and 11, Township 17 South, Range 32 East, Maljamar Pool, Lea County, New Mexico, by the addition of six water injection wells in Sections 4 and 9 of Township 17 South, Range 32 East, NMPM, Lea County, New Mexico.

(3) That

That the wells in the proposed project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(7)8) That the proposed expansion should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the applicant should be authorized to expand the existing waterflood project as proposed, and that said expansion should be governed by the provisions of Rules 701, 702, and 703

of the Commission Rules and Regulations

mand hichely the IT IS THEREFORE ORDERED: Project, formlerly the (1) That the applicant, Leonard Nichols, is hereby authorized to expand the waterflood project, which he operates in Sec-No 18-1538 tions 2, 3, 10, and 11, Township 17 South, Range 32 East, NYPM;

Maljamar Pool, Lea County, New Mexico, by injection

wall injection formation through the following-described injec-

tion wells in Journahya / / Doubh, Klunge 32 Cast, NMPM, the County, New mefice

| MELL 0              | UNIT | SECTION | PCWNSHI-P-RANGE   |
|---------------------|------|---------|-------------------|
|                     |      |         | <b>.</b>          |
| Nichols-Taylor "B"# | ‡1 P | 4       | 17 South 32 East  |
| Nichols-Iles No. 13 | 3 J  | 4       | 17 South 32 East  |
| Nichols-Iles No. 15 | 5 L  | 4       | 1/7 South 32/East |
| Nichols-Iles No. 16 | 5 N  | 4       | 17 Soyeth 32 East |
| Nichols-Iles No. 20 | G (  | 9       | 17 South 32 East  |
| Nichols-Iles No. 21 | В    | 9       | 17 South 32 East  |

(2) jurisdiction

Mona & Fre

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

### State of New Mexico

# Bil Conserbation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER

P. O. BOX 2088 SANTA FE BTATE GEOLOGIST

A. L. PORTER, JR.

BEGRETARY - DIRECTOR

October 16, 1964

Mr. Fred Watson Watson & Watson Attorneys at Law Carper Building Artesia, New Mexico Re: CASE NO. 3100
ORDER NO. R-2777
APPLICANT Leonard Nichols

Dear Sir:

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

Very truly yours,

A. L. PORTER, Jr.

Secretary-Director

| ir/                                |
|------------------------------------|
| Carbon copy of order also sent to: |
| Hobbs OCC X                        |
| Artesia OCC                        |
| Aztec OCC                          |
| OTHER Mr. Frank Irby               |

### BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

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

> CASE No. 3100 Order No. R-2777

APPLICATION OF LEONARD NICHOLS FOR THE EXPANSION OF A WATERFLOOD PROJECT, LEA COUNTY, NEW MEXICO.

### ORDER OF THE COMMISSION

### BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 30, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 14th day of October, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

### FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Leonard Nichols, seeks expansion of the waterflood project authorized by Order No. R-1538 which he operates in Sections 2, 3, 10, and 11, Township 17 South, Range 32 East, NMPM, Maljamar Pool, Lea County, New Mexico, by the addition of six water injection wells in Sections 4 and 9 of Township 17 South, Range 32 East, NMPM, Lea County, New Mexico.
- (3) That the wells in the proposed project area are in an advanced state of depletion and should properly be classified as "stripper" wells.
- (4) That approval of the subject application should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

-2-CASE No. 3100 Order No. R-2777

### IT IS THEREFORE ORDERED:

(1) That the applicant, Leonard Nichols, is hereby authorized to expand the Leonard Nichols Maljamar Waterflood Project, formerly the Boller-Nichols Roberts Waterflood Project authorized by Order No. R-1538 by converting to water injection the following-described wells in Township 17 South, Range 32 East, NMPM, Lea County, New Mexico:

| WELL                     | UNIT | SECTION |
|--------------------------|------|---------|
| Nichols-Taylor "B" No. 1 | P    | 4       |
| Nichols-Iles No. 13      | 3    | 4       |
| Nichols-Iles No. 15      | L    | 4       |
| Nichols-Iles No. 16      | N    | 4       |
| Nichols-Iles No. 20      | Ð    | 9       |
| Nichols-Iles No. 21      | В    | 9       |

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

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

> STATE OF NEW MEXICO OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E.S. WALKER, Member

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

esr/