

CASE 4380: Appli. of SHENANDOAH  
OIL CORP. FOR A WATERFLOOD  
PROJECT, EDDY COUNTY, N. M.

Case Number

4380

Application  
Transcripts.

Small Exhibits

ETC.

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

209 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-4491 • ALBUQUERQUE, NEW MEXICO



BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
July 1, 1970

EXAMINER HEARING

-----  
IN THE MATTER OF: )

Application of Shenandoah Oil )  
Corporation for a waterflood )  
project, Eddy County, )  
New Mexico. )  
-----

Case No. 4380

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The first case on the docket to be heard will be Case 4380. The balance of the cases will be taken in order.

MR. HATCH: This is the application of Shenandoah Oil Corporation for a waterflood project, Eddy County, New Mexico. The applicant seeks authority to institute a waterflood project in the Shugart Pool, Eddy County, New Mexico, by injection of water into the Yates and Queen formations through its Shugart "B" Well No. 1 located in the southwest quarter, southeast quarter of Section 33, Township 18 South, Range 31 East.

MR. UTZ: Any other appearances in this case?

MR. JENNINGS: I am James T. Jennings of Jennings, Christy & Copple, appearing on behalf of the applicant, Shenandoah Oil Corporation. I will have one witness, Mr. Pat Bates.

PAT BATES,

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

DIRECT EXAMINATION

BY MR. JENNINGS:

Q Would you state your name and occupation, please?

A My name is T. Pat Bates, Shenandoah Oil Corporation,

Vice President in charge of secondary recovery, Fort Worth.

Q Have you testified at hearings before this commission on many occasions, Mr. Bates?

A Yes, on two separate occasions.

MR. JENNINGS: Do you wish any further qualification of Mr. Bates?

MR. UTZ: No, sir. He is previously qualified to testify before the Board of Commissioners.

MR. JENNINGS: Before proceeding I would like to amend our application to make an application for a waterflood project and to convert this one well to waterflood injection. We originally made an application for administrative approval in connection with Case No. 3779 and the acreage in question had been included in that project and would also call the Commission's attention to a typographical error in paragraph No. 5 of the application where the well which we propose to convert "Shugart 'B' No. 1 Well" was described as "Unit I" when in affect it should have been "Unit O". The location is correct. It is in the SW/4, SE/4 of Section 33.

MR. UTZ: What is the amendment that you propose here?

MR. JENNINGS: We originally filed this -- we still want to -- we filed it for administrative approval to convert this well or to convert a well to water injection and the

Commission determined that while this was in the same area it would not qualify for administrative approval, so we want to make our application coincide with --

MR. UTZ: I see, to a waterflood project. What you want is an expansion of the waterflood?

MR. JENNINGS: No, sir.

MR. HATCH: Excuse me. We didn't allow the expansion. That was the reason he had to come on for a hearing as a separate party because the one they had applied for, administrative procedure under an expansion, but it was not their own waterflood, so we said --

MR. UTZ: I see. You want to create a waterflood.

MR. JENNINGS: Well, maybe that is it. I am not too sure, but there is one there.

MR. UTZ: If you don't have one, I guess you do want one if you are going to have an injection well, is that it?

MR. JENNINGS: Yes, sir.

Q Mr. Bates, is the Shenandoah Oil Company the owner and operator of the Shugart No. "B" unit well located in the SW/4, SE/4 of Section 33, Township 18 South, Range 31 East?

A Yes. It is.

Q Is that well located within your original waterflood project which is known as the Shenandoah-Shugart Waterflood Project?

A Yes. It is in the same area included in the same acreage as we initially started out with.

MR. JENNINGS: Mr. Reporter, would you mark that as Exhibit 6?

(Whereupon, Applicant's Exhibit No. 6 was marked for identification)

MR. HATCH: May I interrupt? Our engineers said that there were certain dry holes or something in-between the area to be flooded and this particular well, and he said he would have to have a new well.

MR. UTZ: Well now, you are confusing me. Does Shenandoah have a waterflood in this area?

MR. JENNINGS: Maybe I can clarify it. Shenandoah has a -- and our exhibit will show this -- Shenandoah has a waterflood to the north and west and under Case No. 4251 Kersey has instituted or proposed to institute a waterflood project in Section 4, 19, 31, which is south of there.

MR. UTZ: You do have the waterflood up in Sections 29 and 30?

MR. JENNINGS: Yes, sir. In light of the present advertisement we now propose to join Mr. Kersey in his and we have a cooperative waterflood agreement with Mr. Kersey with the two wells which are located in Section 4, Township 19 South, Range 31 East.

MR. UTZ: But you do only have a lease-line agreement with him?

MR. JENNINGS: Yes, sir. We have. We have an agreement which is attached to our exhibit, a cooperative waterflood agreement with Mr. Kersey, the operator.

MR. UTZ: This will not be a part of his waterflood -- in a legal sense you are not going to share allowances?

MR. JENNINGS: No, sir.

MR. UTZ: You are going to have a waterflood.

MR. JENNINGS: All right, so unless it goes in our basic -- we just want permission to inject water in his wells. It will be a separate project as I consider it.

MR. UTZ: You may proceed.

(Exhibit marked, Exhibit 6)

Q Mr. Bates, referring to what has been marked as Exhibit 6, is Shenandoah currently injecting water in or concurrently conducting waterflood operations in the area covered by this plat?

A Yes. It is Section 29, 30.

Q How many injection wells do you have in that area?

A We have 11, a total of 11 injection wells and injecting about 6200 barrels a day.

Q Just for the Commission's information, how has that



flood responded?

A It is responding very well. It is producing over 300 barrels a day -- still increasing.

Q Now, do you propose entering -- have you entered into an agreement with Harold Kersey to flood the area or the wells in Sections 33, 18, 31?

A Yes. We have. That is affective the 9th of April this year.

Q And you entered into the cooperative agreement for waterflooding, a copy of which was attached to your application as Exhibit 1?

A Right, yes.

Q What zones do you propose to inject water into?

A We plan on injecting water in the Queen's Formation.

Q Where are you going to get the water?

A We will get the water from our plant we have set up now in Section 29 on the Shugart "A" Lease and we will furnish water to Kersey. He will, in turn, sell us pressured water for our well.

Q Has Mr. Kersey heretofor filed an application to convert two of his wells located in Section 4 to water injection wells?

A Yes. He has. Well No. 2 and 4.

Q This was filed in connection with Case No. 4251?

A Yes.

Q Do you know if the Commission granted authority for him to inject water into these two wells?

A Yes. They did.

Q What is the current status of the Kersey Project, if you know?

A Well, to date I believe Kersey has completed installation of a supply line from our plant over to the site near his No. 4 Well. I think he plans on setting his plant up in the near future.

Q What is the nature of acreage upon which your well is located, your proposed injection well?

A What do you mean?

Q Is it Federal acreage?

A It is Federal.

Q Did you ask and obtain the approval of the United States Geological Survey for the conversion of this well?

A Yes. We did. We received approval.

Q I asked you if this was the approval you received?

A Yes. It is.

MR. JENNINGS: We'd like it marked Exhibit 7.

(Whereupon, Applicant's  
Exhibit No. 7 was  
marked for identification)

Q Referring to Exhibit 7, Mr. Bates, where are the Kersey

wells with reference to your well -- where are they located?

A Well, they are south of our well.

Q And how many producing wells do you have in the area?

A We only have another additional producing well other than this No. 1 that we are going to convert.

Q Is that the number Shugart "B" No. 3?

A yes.

Q That is located in the SE/4 of Section 33?

A Yes.

Q Now, Mr. Bates, what is the production history of the two wells in question, the Shugart No. 1 and the Shugart No. 3?

A Well, currently, up to June 1, this year, both wells have produced 57,000 barrels.

Q What is the current production at this time?

A Just one barrel or less a day per well.

Q Mr. Bates, referring to your application and exhibit, referring to what has been marked Exhibit 3 to the application, would you briefly explain what this reflects?

A Well, Exhibit 3 reflects this agreement we had with -- no, it doesn't -- excuse me. This just shows the field pattern, injection pattern that we have the present time and then it shows the one well here that we would like to convert to injection.

Q That is basically the same as Exhibit 7 which we have heretofor introduced, but on a larger scale?

A Yes.

Q Now, I believe that you stated you entered into a cooperative agreement with Mr. Kersey. What is generally the nature of that agreement?

A Well, it just outlines certain conditions that we have for us selling him water for his plant and then actually the main part of it is that in this agreement we have stated that we would like 300 barrels per day injected in each one of the wells and not over 2,000 pounds pressure.

Q Now, referring to what has been attached to the application and marked as an exhibit, that is your casing program of the conversion for the well which you propose to use for waterflood for injection purposes, would you explain that to the Commission?

A Yes. This diagram indicates that the 8 1/2 inch casing is set at 875 feet and the top of the cement was back to 403 feet from the surface and has 5 1/2 inch casing set 3420 feet; the top cement being at 733. Now, this well is completed both in the Yates and Queen sections. The Yates section is perforated from 2739 to 2785 and the Queen section from 3356 to 3366. Now, we propose to go in with two inch plastic-coated tubing with tension type packer set just above the Queen's

perforation, below the Yates section. We will not inject into that section at the present time.

Q You do contemplate injecting into the Yates section at a later date?

A Later on I think that we would possibly do that.

MR. HATCH: Excuse me. The USGS letter speaks of injection in the Yates, Seven Rivers, Queen and Grayburg formations, but you are only seeking, in this hearing, for the Yates and Queen formations?

THE WITNESS: Just the Yates and Queen formation. That is all that is down there actually that is productive in that area.

Q (By Mr. Jennings) I might clarify it, Mr. Hatch. That was the formation that was allowed in Case 3779, the original one.

A Yes. That is the field designation.

Q Do you have a log of the well in question, Mr. Bates?

A Yes. I have.

Q That log was attached to the original application as Exhibit No. 5, is that right?

A Right.

Q And that shows the formation where you propose to inject?

A Yes. It does.

Q That is from the depth of 2739 to 2985?

A Well, let me come back. That zone will not be injected into at the present time. That is the Yates section.

Q It is the Queen's that you propose to?

A That is right.

Q 3356 to 3366?

A Yes.

Q Mr. Bates, do you feel that the injection of water in this well will insure the protection of correlative rights and result in the ultimate increase in production?

A Yes. I do.

Q And prevent waste?

A Yes.

Q Were the Exhibits No. 1 to 5 which were attached to the original application and Exhibit No. 6 prepared by you or under your supervision and direction, other than the log?

A Yes. It was prepared by me.

MR. JENNINGS: We'd like to offer these exhibits as Exhibit 7 which is an original letter from the United States Geological Survey and we would also request the Commission to incorporate in this case the testimony offered in Cases No. 3779 and 4251 which are the 4251 being the Kersey flood immediately adjacent to the well in question and 3379 being the Shenandoah-Shugart waterflood located to the north and west

of this area which actually included this acreage.

MR. UTZ: What was the number on Kersey?

MR. JENNINGS: 4251. In connection with the Kersey, I might say the Commission entered the order in that case on November 5, 1969 authorizing the conversion of two wells to water injection wells.

MR. UTZ: You wish to mark these exhibits that you filed with your application?

MR. JENNINGS: Yes, sir. We would like to.

MR. UTZ: As exhibits in this case?

MR. JENNINGS: Yes. We have nothing further.

MR. UTZ: Exhibits No. 1 through 7 will be entered into the record in this case.

(Whereupon, Applicant's Exhibits 1-7  
were entered into the case)

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Bates, referring to your Exhibit No. 4 which is your diagram of your completion, how old is that casing on the well?

A I really don't have that date. I have to get it.

Q Is it pretty old casing?

A It is not any older than these in the initial water-flood project. They were drilled in 1959, I believe -- pretty close.

Q Now, it is your intention to inject down the casing.

A No, sir. We will inject plastic-coated tubing underneath a packer, the packer being set just above the Queen's perforation. It will be new plastic-coated tubing.

Q The packer will be set within what -- 10 feet or so?

A I'd say on that diagram -- approximately 3340, I think -- pretty close to that, yes.

Q It is fresh water you are going to use?

A It is going to be fresh to brackish water. We will co-mingle water later on.

Q But you will reinject produced water?

A Yes.

Q When it is available?

A Yes, sir.

Q Do you intend to coat the annulus with inert fluid?

A We sure do. Yes, sir.

Q Are you going to leave the annulus open?

A We will have a valve and a gauge on it where we can check it.

Q Do you intend to test this casing before you inject water?

A Well, we could. I hadn't planned on it. It will be loaded -- the hole will be loaded. We didn't test the casing so far as the other wells were concerned. We loaded the hole and they held water, so that is what is in there.



Q And this well is on the same basic lease as your waterflood in Section 29 and 30, is that correct?

A Yes, sir.

Q However, this is an expansion of over a mile from the other project?

A Yes, sir.

Q So I am quite sure that the Commission will create another flood project in this area. In that case, what do you wish to call this -- Shugart "B" Lease, is it?

A That would probably be the best way to designate it.

MR. UTZ: Any other questions of the witness?

If not, the witness may be excused.

Any statements in this case?

The case will be taken under advisement.

I N D E XWITNESSPAGE

PAT BATES

Direct Examination by Mr. Jennings

2

Cross Examination by Mr. Utz

13

EXHIBITMARKEDOFFERED AND  
ADMITTED

Applicant's 6

5

Applicant's 7

8

(Exhibits 1-7)

13

Peter A. Lummis  
Certified Shorthand Reporter

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Interstate hearing of Case No. 4380  
dated July 1, 1930  
New Mexico Oil Conservation Commission

SHENANDOAH OIL CORPORATION

1500 COMMERCE BUILDING  
FORT WORTH, TEXAS 76102

B. J. KELLENBERGER  
PRESIDENT

September 16, 1970

TELEPHONE  
ED 2-7381

70 SEP 21 AM 10 23

*File Carl 4380*

Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter

Re: Commission Order #R-3992  
Shenandoah Shugart "B"  
Water Flood Project  
Eddy County, New Mexico

Dear Mr. Porter:

Please refer to my letter of September 2, 1970 whereby you were informed of the initial water injection date for our Shugart "B" No. 1 well, Eddy County, New Mexico

This date should read August 28, 1970 instead of September 28, 1970.

Very truly yours,

SHENANDOAH OIL CORPORATION

*T. P. Bates*  
T. P. Bates  
Vice President - Secondary  
Recovery

TPB:Jn

CC: New Mexico Oil Conservation Commission  
P.O. Drawer DD  
Artesia, New Mexico 88210

U. S. Department of Interior  
Geological Survey  
P. O. Drawer U  
Artesia, New Mexico 88210

Jennings & Copple  
P. O. Box 1180  
Roswell, New Mexico 88201

Mr. C. W. Downey  
P. O. Box 2189  
Hobbs, New Mexico 88240

**SHENANDOAH OIL CORPORATION**

1500 COMMERCE BUILDING  
FORT WORTH, TEXAS 76102

B. J. KELLENBERGER  
PRESIDENT

TELEPHONE  
ED 2-7381

September 2, 1970

Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

'70 SEP 8 AM 9 11

Attn: Mr. A. L. Porter

Re: Commission Order #R-3992  
Shenandoah Shugart "B"  
Water Flood Project - Eddy  
County, New Mexico

Dear Mr. Porter:

In accordance with Rule 703(a) of the New Mexico Rules and Regulations Book, this is to advise you that water injection was commenced September 28, 1970 into the Shenandoah Shugart "B" No. 1 well as set forth in Case No. 4380 (see attached plat).

This well is currently taking 271 barrels of water a day at 180 pounds.

Very truly yours,

SHENANDOAH OIL CORPORATION

*T. P. Bates*  
T. P. Bates  
Vice President - Secondary  
Recovery

TPB:jn

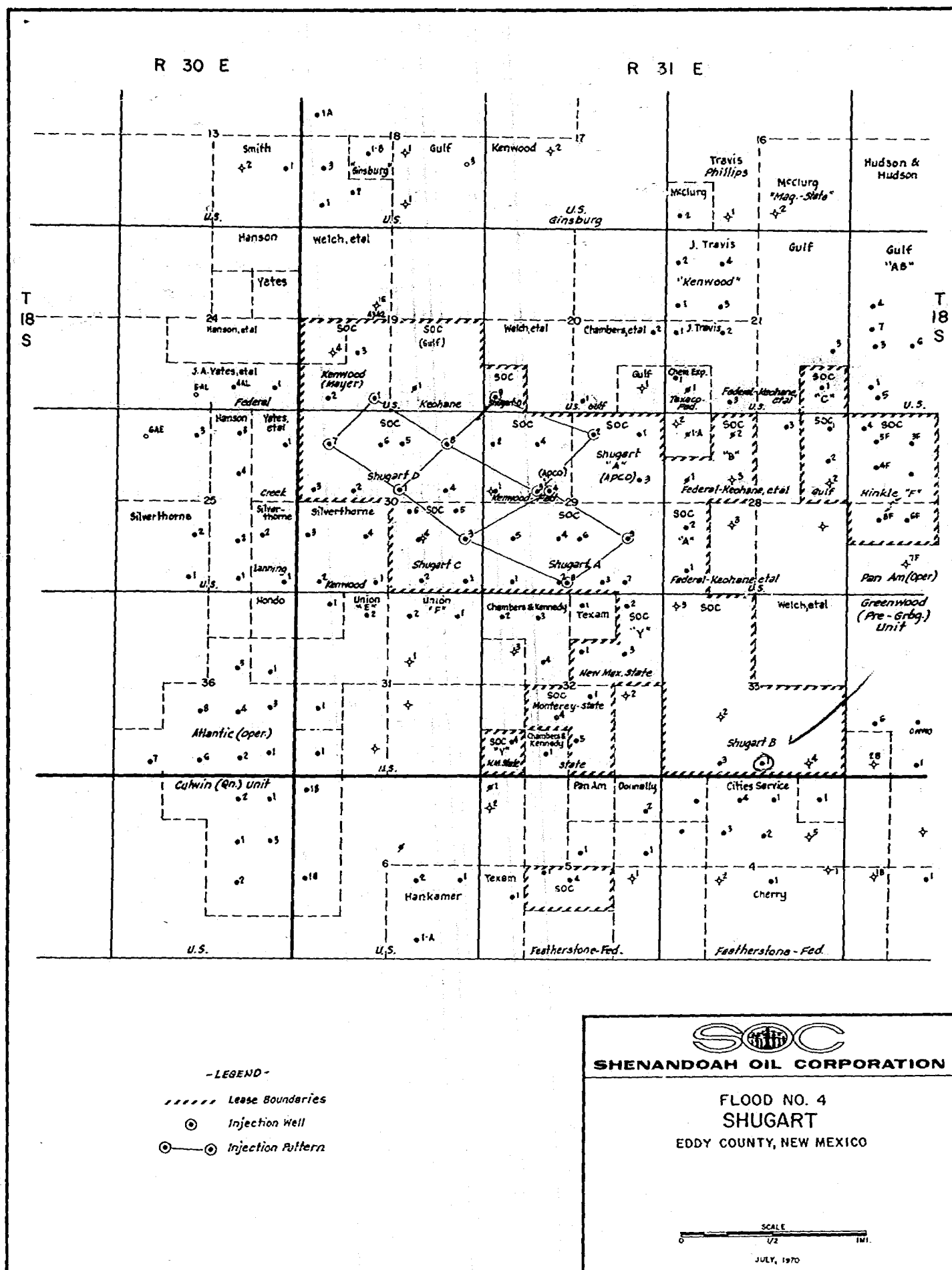
Attachment

CC: New Mexico Oil Conservation Commission  
P. O. Drawer DD  
Artesia, New Mexico 88210

U. S. Department of Interior  
Geological Survey  
P. O. Drawer U  
Artesia, New Mexico 88210

Jennings & Copple  
P. O. Box 1180  
Roswell, New Mexico 88201

Mr. C. W. Downey  
P. O. Box 2189  
Hobbs, New Mexico 88240



**OIL CONSERVATION COMMISSION**

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

July 13, 1970

Mr. James T. Jennings  
Jennings, Christy & Copple  
Attorneys at Law  
Post Office Box 1180  
Roswell, New Mexico 88201

Dear Sir:

Enclosed herewith is Commission Order No. R-3992, entered in Case No. 4380, approving the Shenandoah Shugart "B" Waterflood Project.

Injection shall be through the one authorized water injection well, which shall be equipped with an internally plastic-coated tubing set in a packer located at approximately 3340.

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 84 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

-2-

Mr. James T. Jennings  
Jennings, Christy & Copple  
Attorneys at Law  
Roswell, New Mexico  
July 13, 1970

C  
Your cooperation in keeping the Commission so informed as to the  
status of the project and the wells therein will be appreciated.

O  
Very truly yours,

A. L. PORTER, Jr.  
Secretary-Director

P  
ALP/DSM/ir

cc: Oil Conservation Commission  
Hobbs and Artesia, N. Mex.

Y  
U. S. Geological Survey  
Drawer U  
Artesia, New Mexico

Mr. D. E. Gray  
State Engineer Office  
Santa Fe, New Mexico



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. 4380  
Order No. R-3992

APPLICATION OF SHENANDOAH OIL  
CORPORATION FOR A WATERFLOOD  
PROJECT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 1, 1970,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 15th day of July, 1970, 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, Shenandoah Oil Corporation, seeks  
authority to institute a waterflood project in the Shugart Pool  
by the injection of water into the Yates and Queen formations  
through its Shugart "B" Well No. 1, located in the SW/4 SE/4 of  
Section 33, Township 18 South, Range 31 East, NMPM, Eddy County,  
New Mexico.

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

(4) That the proposed waterflood project should result in  
the recovery of otherwise unrecoverable oil, thereby preventing  
waste.

-2-

CASE No. 4380  
Order No. R-3992

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

**IT IS THEREFORE ORDERED:**

(1) That the applicant, Shenandoah Oil Corporation, is hereby authorized to institute a waterflood project in the Shugart Pool by the injection of water into the Yates and Queen formations through its Shugart "B" Well No. 1, located in the SW/4 SE/4 of Section 33, Township 18 South, Range 31 East, NMPM, Eddy County, New Mexico.

(2) That the subject waterflood project is hereby designated the Shenandoah Shugart "B" Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.


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

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
DAVID F. CARGO, Chairman

  
ALEX J. ARMIJO, Member

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



esr/

ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. James T. Jennings  
Jennings, Christy & Copple  
Attorneys at Law - P. O. Box 1180  
Roswell, New Mexico 88201

Dear Sir:

Enclosed herewith is Commission Order No. R-3992, entered in Case No. 4380, approving the Shenandoah Shugart "B" Waterflood Project.

*Injection shall be through the one authorized water injection well, which shall be equipped with an internally plastic coated tubing set in a packer located at approximately 3340 feet.*

As to allowable, our calculations indicate that when all of the authorized injection wells have been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 84 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.  
Secretary-Director

cc: OCC: Hobbs X  
Artesia X  
Aztec

USGS Artesia

Mr. Frank Irby, State Engineer Office, Santa Fe, New Mexico  
Mr. D. Gray,

4380

Heard 7-1-70

Ree 7-6-70

Grant Shandanoah permission  
to convert their shurgut B #1  
wells 0-33-185-31E to a water  
injection well for purposes of  
waterflood. A lease line a-  
greement has been reached  
between Shandanoah and  
Kersey who operates the water  
flood in sec 4-185-31E.

Injection shall be thru 2"  
int. plastic coated tubing and end  
sparker to be set at approx  
3340. Circulus to be filled  
with inert fluid w/ pressure  
gauge at surface.

Thrust Mfg

Docket No. 16-70

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 1, 1970

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 4354: (Continued from the May 13, 1970, Examiner Hearing)

Application of Michael P. Grace and Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 11, Township 23 South, Range 26 East, South Carlsbad Field, Eddy County, New Mexico, said acreage to be dedicated to a well to be drilled in either the NE/4 NW/4 or the NW/4 NE/4 of said Section 11. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4165: (Reopened):

In the matter of Case No. 4165 being reopened pursuant to the provisions of Order No. R-3795, which order established 160-acre spacing units and an 80-acre proportional factor of 4.77 for the East Bagley-Pennsylvanian Pool, Lea County, New Mexico. All interested parties may appear and show cause why the said pool should not be developed on less than 160-acre spacing units and to show cause why the 80-acre proportional factor of 4.77 should or should not be retained.

CASE 4173: (Reopened):

In the matter of Case No. 4173 being reopened pursuant to the provisions of Order No. R-3811, which order established 80-acre spacing units and a limiting gas-oil ratio of 4000 cubic feet of gas per barrel of oil for the Hobbs-Drinkard Pool, Lea County, New Mexico. All interested parties may appear and show cause why the said pool should not be developed on 40-acre spacing units and why the limiting gas-oil ratio should not revert to 2000 to one.

CASE 4371: Application of Betty Oil Company for a waterflood expansion and amendment of Order No. R-2966, as amended, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Justis-McKee Unit Waterflood Project, Justis-McKee Pool, by the conversion to water injection of four additional wells in Units B and H of Section 24, Township 25 South, Range 37 East, and Units D and M of Section 19, Township 25 South, Range 38 East, Lea County, New Mexico. Applicant further seeks the amendment of Order No. R-2966, as amended, to permit administrative approval for the drilling or conversion of additional injection wells at orthodox or unorthodox locations without a showing of well response.

CASE 4372: Application of International Hydrocarbons Incorporated for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox gas well location for a well to be drilled 990 feet from the North and West lines of Section 8, Township 26 South, Range 33 East, Red Hills-Wolfcamp Gas Pool, Lea County, New Mexico.

CASE 4373: Application of Benson-Montin-Greer Drilling Corporation for pool redelineation, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks the redelineation of certain pool boundaries to include the deletion of the following-described acreage from the East Puerto Chiquito-Mancos Oil Pool, Rio Arriba County, New Mexico.

TOWNSHIP 26 NORTH, RANGE 1 EAST

Section 20: W/2  
Section 29: All  
Section 32: All  
Section 33: W/2

TOWNSHIP 25 NORTH, RANGE 1 EAST

Section 4: W/2  
Section 5: All  
Section 8: All  
Section 9: W/2  
Section 17: All  
Section 20: All  
Section 29: W/2

and for the extension of the West Puerto Chiquito-Mancos Oil Pool to include the above-described acreage and the following-described acreage in said county:

Examiner Hearing - July 1, 1970

-3-

Docket No. 16-70

(Case 4373 continued)

TOWNSHIP 24 NORTH, RANGE 1 WEST  
Sections 1 through 36 - All

TOWNSHIP 24 NORTH, RANGE 1 EAST

Section 6: All

Section 7: All

Section 8: W/2

Section 17: W/2

Section 18: All

Section 19: All

Section 20: W/2

Section 30: All

CASE 4374: Application of Benson-Montin-Greer Drilling Corporation for expansion of a unit area, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand the Canada Ojitos Unit Area, authorized by Order No. R-2544, to include some 20,480 additional acres, more or less, of Federal, State and Fee lands in Township 24 North, Ranges 1 East and 1 West, Township 25 North, Ranges 1 East and 1 West; and Township 26 North, Range 1 East, Rio Arriba County, New Mexico.

CASE 4366: (Readvertised)  
Application of Mobil Oil Corporation for down-hole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Vacuum-Wolfcamp and Vacuum-Upper Pennsylvanian Pools in the well-bore of its Bridges State Well No. 109, a triple completion, located in Unit N of Section 24, Township 17 South, Range 34 East, Lea County, New Mexico.

CASE 4375: Application of Pan American Petroleum Corporation for an exception to Rule 104 C. I, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception Rule 104 C. I of the Commission Rules and Regulations to permit the completion within 660 feet of another producing

CASE 4375 - Continued from Page 3 -

well of its Byers "A" Well No. 1 which is being directionally drilled in Unit C of Section 5, Township 19 South, Range 38 East, Hobbs Pool, Lea County, New Mexico, pursuant to Order No. R-3973.

CASE 4376: Application of Pan American Petroleum Corporation for an exception to Order No. R-3221, as amended, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's Lusk "A" Lease comprising the NE/4 of Section 6, Township 15 South, Range 30 East, Double L-Queen Pool, Chaves County, New Mexico. Applicant seeks authority to dispose of salt water produced by wells on said lease in an unlined surface pit.

CASE 4377: Application of Champlin Petroleum Company for a unit agreement, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of the State 32-7-33 Unit Area comprising 640 acres, more or less, of State lands in Section 32, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

CASE 4378: Application of Champlin Petroleum Company for a waterflood expansion and amendment of Order No. R-3550, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its State 32 Waterflood Project, Chaveroo-San Andres Pool, by the conversion of water injection of one additional well located in Unit B of Section 32, Township 7 South, Range 33 East, Roosevelt County, New Mexico. Applicant further seeks the amendment of Order No. R-3550 to permit administrative approval for the drilling or conversion of additional injection wells without a showing of well response.



Examiner Hearing - July 1, 1970

Docket No. 16-70

-5-

CASE 4379: Application of Hal M. Stierwalt for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, for himself and as agent for Southern Union Production Company, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico. Said exception would be for eight of Stierwalt's wells and four of Southern Union Production Company's wells located in Sections 1 and 2 of Township 16 South, Range 30 East, West Henshaw-Grayburg Pool, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by said wells in unlined surface pits located in the vicinity of said wells.

CASE 4380: Application of Shenandoah Oil Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Shugart Pool, Eddy County, New Mexico, by the injection of water into the Yates and Queen formations through its Shugart "B" Well No. 1 located in the SW/4 SE/4 of Section 33, Township 18 South, Range 31 East.

OIL CONSERVATION COMMISSION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

June 12, 1970

Mr. James T. Jennings  
Jennings, Christy & Copple  
Attorneys at Law  
P. O. Box 1180  
Roswell, New Mexico

DOCKET MAILED

~~Date~~ 6-18-70

Re: Application of Shenandoah Oil Corporation  
for administrative approval of the conver-  
sion of its Shugart "B" No. 1 Unit I Well,  
Section 33, Township 18 South, Range 31  
East, NMPM, Shugart Pool, Eddy County, New  
Mexico, to a water injection well

Dear Mr. Jennings:

This will acknowledge receipt of your letter of  
June 10, 1970, and the subject application.

The subject application is not eligible for admin-  
istrative approval and has been set for the July 1, 1970,  
Examiner Hearing.

A copy of the docket will be mailed to you within  
the next few days.

Very truly yours,

GEORGE M. HATCH  
Attorney

GMH/esr

C  
O  
P  
Y

COOPERATIVE AGREEMENT FOR WATERFLOODING

SHUGART FIELD

EDDY COUNTY, NEW MEXICO

STATE OF NEW MEXICO       )  
                                  ) ss  
COUNTY OF EDDY            )

THIS AGREEMENT, made and entered into by and between the parties named as operators and owners of the 3 leases described below:

WITNESSETH:

WHEREAS, KERSEY & COMPANY (KERSEY) is the owner and operator of the "Nickson "A" Lease covering the NW/4 NW/4 of Section 4, Township 19 South, Range 31 East, Eddy County, New Mexico; and

WHEREAS, Kersey is the operator and an owner of the "Welch "A" Lease covering the E/2 NW/4, W/2 NE/4 and NE/4 NE/4 of Section 4, Township 19 South, Range 31 East, Eddy County, New Mexico; and

WHEREAS, Shenandoah Oil Corporation is the owner and operator of Shugart "B" Lease covering the S/2 and NW/4 of Section 33, T18S, R-31-E; Eddy County, New Mexico; and

WHEREAS, the parties hereto agree that a cooperative waterflood program having as its purpose the creation or attempted creation of an artificial water drive by the injection of water through the injection wells hereinafter provided for into the Queen Sand Formation is a reasonable producing and engineering practice; and

WHEREAS, the parties desire to institute and operate such a program with the view of increasing the ultimate recovery of oil, gas, and associated minerals from the Queen Sand formation and protecting the respective correlative rights of such parties;

NOW, THEREFORE, in consideration of the premises and mutual covenants and agreements herein contained, the parties hereto agree as follows:

1.

Shenandoah shall convert to a water injection well its "Shugart "B" No. 1 located in SW/4 SE/4, Section 33, Township 17 South, Range 31 East, Eddy County, New Mexico.

EXHIBIT "1"

BEFORE EXAMINER	
OIL CONSERVATION	
<i>app</i>	EXHIBIT NO. <u>1</u>
CASE NO. <u>4360</u>	

Kersey shall convert to water injection wells its "Welch "A" No. 2 well, located in SW/4 NE/4 Section 4; and the Welch "A" No. 4 well, located in NE/4 NW/4 Section 4 all in Township 19 South, Range 31 East, Eddy County, New Mexico.

Said leases and the wells located thereon to be converted to water injection are shown on the plat attached hereto as Exhibit A and made a part hereof.

After this agreement is executed by all parties, each party shall proceed with all reasonable dispatch to convert its well or wells to water injection and such conversion shall be completed with due diligence, but in no event later than three (3) months after execution of this agreement has been completed. The entire cost and expense incurred in converting and equipping each such well into an injection well and the cost of operating same as an injection well shall be borne entirely by the parties owning such well.

2.

Pressured water shall be furnished to Shenandoah, by Kersey, at a cost to Shenandoah of \$0.0215 per barrel of water delivered (a barrel being defined as 42 U. S. gallons) or at the exact cost that Shenandoah is currently purchasing water from the Double Eagle Corporation of New Mexico currently servicing Shenandoah's Shugart Flood now in operation. If this rate should be changed by Double Eagle due to Federal and State regulations then the above rate \$0.0215 per barrel will be changed accordingly; but no more per barrel than Shenandoah pays to Double Eagle.

This pressured water shall be treated in such a manner as to prevent corrosion to the injection system and well equipment. A 2" internally plastic coated line, or the equivalent shall be installed to Shenandoah's lease line, at a point nearest to the Shugart B-1 well and it will be at the expense of Shenandoah to continue this line to its well location.

In the event that later in the flood life Kersey desires to furnish Shenandoah with commingled produced and fresh water, it shall be agreed that this water shall be of reasonable quality and to the satisfaction of Shenandoah.

3.

Each of the parties hereto agrees with all reasonable dispatch to commence the injection of water through the aforesaid well or wells on its leases and to continue the injection program until the entire productive interval of the Queen Sand formation is being waterflooded at such rate as may be necessary to result in and maintain, insofar as is reasonable practicable, equal advancement of the flood front around each injection well, and thereafter to continue injection at such rates. To such end, the parties hereto shall endeavor to attain a water injection rate in each injection well of 300 barrels of water per day, or if this rate is unobtainable, whatever amount can be injected at 2,000 psi maximum surface pressure. The injection wells shall be kept in proper repair. Each party agrees to provide the other party, monthly, with a record of the wellhead pressure of each injection well and of the daily volumes of water injected into each well covered by this agreement measured by a suitable water meter. Upon reasonable request, each party agrees to make its records pertaining to water injection operations available to the other parties and to permit the other parties to observe operations or tests of its injection wells.

4.

It shall be the responsibility of each party hereto to inject water into the injection wells to be operated by each party hereunder and all costs and expenses incurred in connection with injection water into said wells shall be borne by the party operating said well. It shall be the responsibility of Shenandoah to install and maintain a water meter at its well and to keep this meter in proper working order at all times.

5.

The duties, liabilities, and obligations of the parties hereto are several and not joint or collective and nothing contained herein shall ever be construed as imposing a partnership obligation or liability with regard to any of the parties hereto. Each party shall be individually responsible for producing oil from its own wells and shall be entitled to all production from its wells and leases, and each party hereto shall be individually responsible for only its obligations as set out herein and shall be liable only for its costs and expenses as herein stipulated.

6.

In the event any party to this agreement is rendered unable, in whole or part, by force majeure to carry out its respective obligations under this agreement, then such obligations, so far as they are affected by such force majeure, shall be suspended during the continuance of any inability so caused; however, reasonable efforts shall be made to remedy such cause with all reasonable dispatch. The term "force majeure", as employed herein, shall mean acts of God, strikes, lockouts, riots, epidemics, lightning, earthquakes, arrests, explosion, priority regulations of any government having sovereignty, accident to machinery or pipe, altercations, failure of water supply, injunctions, and any other causes, whether or not of the character above enumerated, not within the control of the party claiming suspension and which, by the exercise of due diligence, such party is unable to overcome. It is understood that the settlement of strikes or lockouts shall be entirely within the discretion of the party having the difficulty and the requirement that reasonable efforts shall be made to remedy the cause promptly shall not require the settlement of strikes or lockouts by acceding to the demands of the opposing person or organization when such course is inadvisable in the discretion of the party having the difficulty. Any party hereto that is unable, in whole or in part, to carry out its respective obligations because of such force majeure, shall, within ten (10) days after the occurrence of the interference giving rise to such force majeure, give written notice to the other party hereto stating reasonable particulars of such interference.

7.

This agreement shall remain in force and effect for a period of one year from and after the first day of the month immediately following the first injection of water into any of the aforementioned injection wells and shall continue in effect thereafter unless and until terminated in whole or in part as provided below.

At the end of the above-mentioned period of one year or at any time thereafter, any party who is named above as a lease operator may abandon water injection into any or all of its wells by giving the other lease operators at least thirty (30) days after receipt of such notice to take over the said injection well or wells, together with the casing therein by paying the abandoning party \$1000 per well plus the agreed on salvage value for whatever additional equipment the acquiring party desires to purchase and the acquiring party or parties shall assume full responsibility, cost, expense, and liability for the proper plugging of said well or wells on ultimate abandonment. In the event said option is exercised by any non-abandonment party, to the extent that it has the right to do so, abandoning party shall assign to acquiring party or parties its right to continue operation of said injection well or wells, it being understood that should any acquiring party desire to continue operations under the provisions of this paragraph, such acquiring party or parties will obtain any necessary consent of the surface owners or mineral owners for continued water injection.

8.

This agreement shall be subject to all valid and applicable state and federal laws, rules, regulations, and orders, and the operations conducted hereunder shall be performed in accordance with all such laws, rules, regulations, and orders.

Each of the nonoperating parties hereto agrees that all notices, reports, and communications permitted or required hereunder may be given to the operator of its lease. Such notices, reports, and communications shall be deemed to have been properly given or delivered when sent by United States mail or Western Union telegram, postage or charges prepaid, and addressed to the party to whom such notice is given as follows:

Kersey & Company  
P. O. Box 316  
Artesia, New Mexico 88210

Shenandoah Oil Corporation  
1500 Commerce Bldg.  
Fort Worth, Texas 76102

Notice shall be given when deposited in the United States post office or with Western Union Telegraph Company, postage or charges prepaid. Each party hereto shall have the right to change its address for all purposes of this agreement by notifying the other party in writing.

10.

The terms, covenants, and conditions hereof shall inure to the benefit of and be binding upon the parties hereto, their successors and assigns.

IN WITNESS WHEREOF, this agreement is entered into as of the

9<sup>th</sup> day of April, 1970.

ATTEST:

Assistant Secretary

ATTEST:

Assistant Secretary

ATTEST:

Assistant Secretary

SHENANDOAH OIL CORPORATION

By P. B. T.  
Vice President - Secondary Recovery

KERSEY & COMPANY

By Harold Kasey

By Leland A. Whittepp



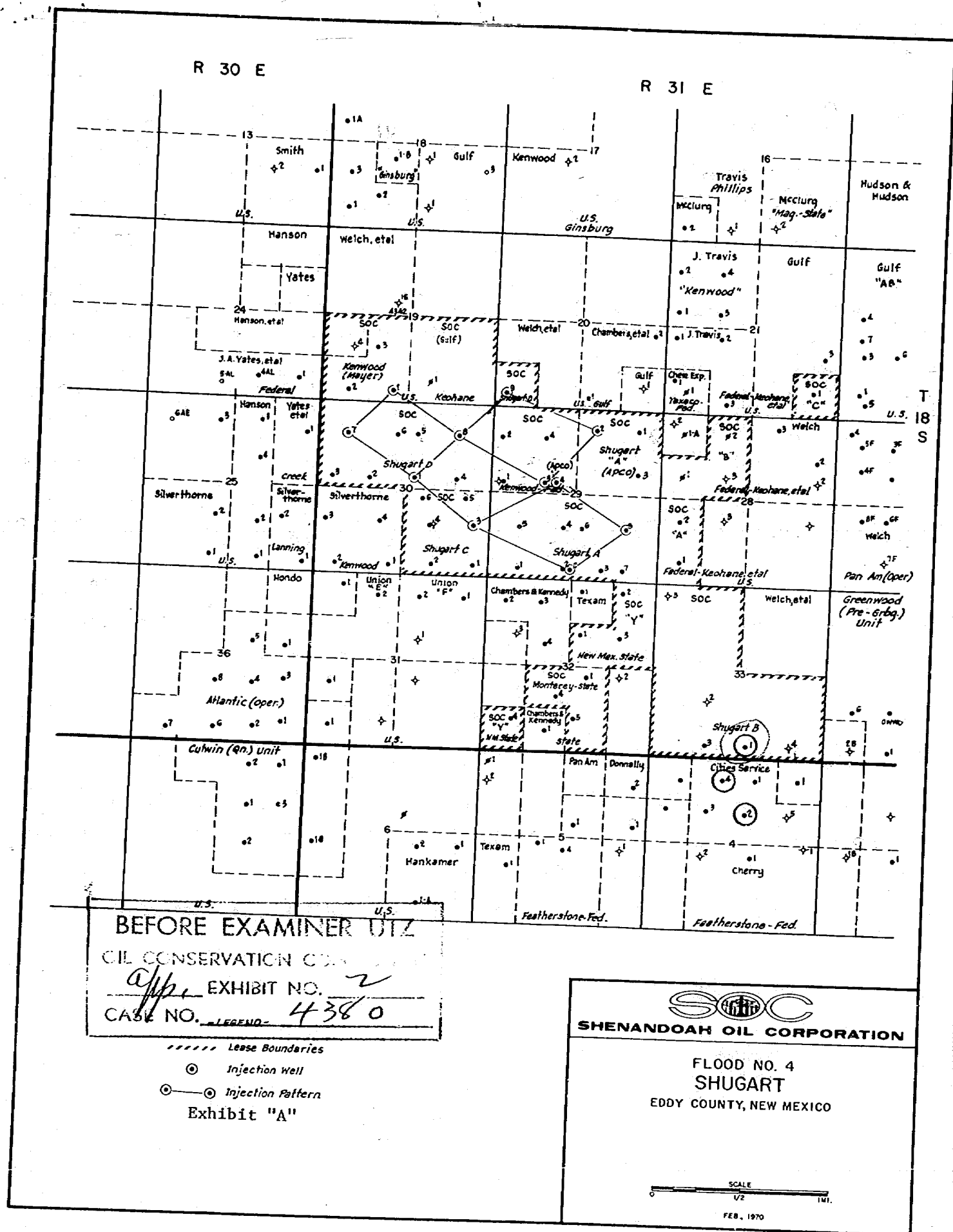
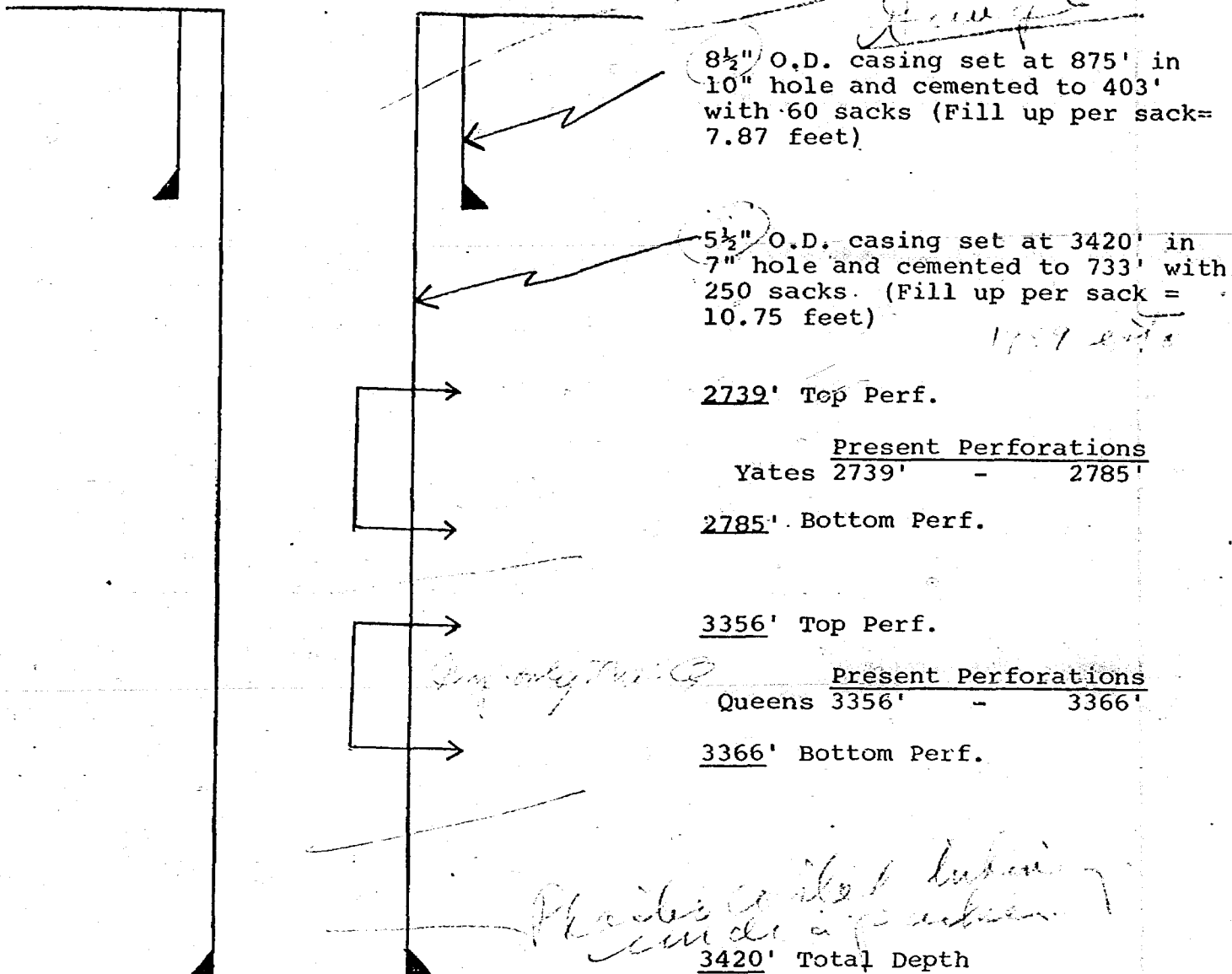


EXHIBIT "2"



SHUGART B-1  
UNIT I 330' FSL & 2310' FEL  
SECTION 33-18S-31E  
EDDY COUNTY, NEW MEXICO



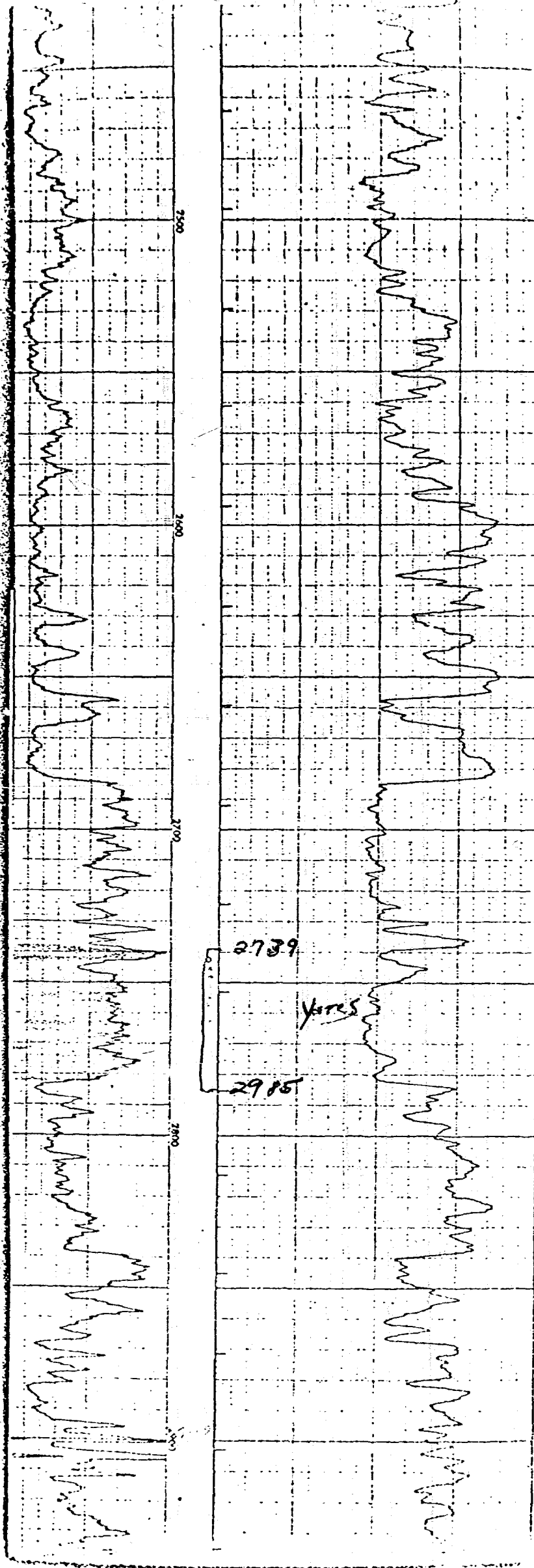
Note:

Perforation log will be run to check present perforations. Internally plastic coated tubing will be run with tension, type packer set at approximately 3340'.

BEFORE EXAMINER UTZ  
OIL CONSERVATION  
EXHIBIT NO. 4  
CASE NO. 4380

BEFORE EXAMINER UTZ  
OIL CONSERVATION  
OFFICE  
EXHIBIT NO. 5  
CASE NO. 4380

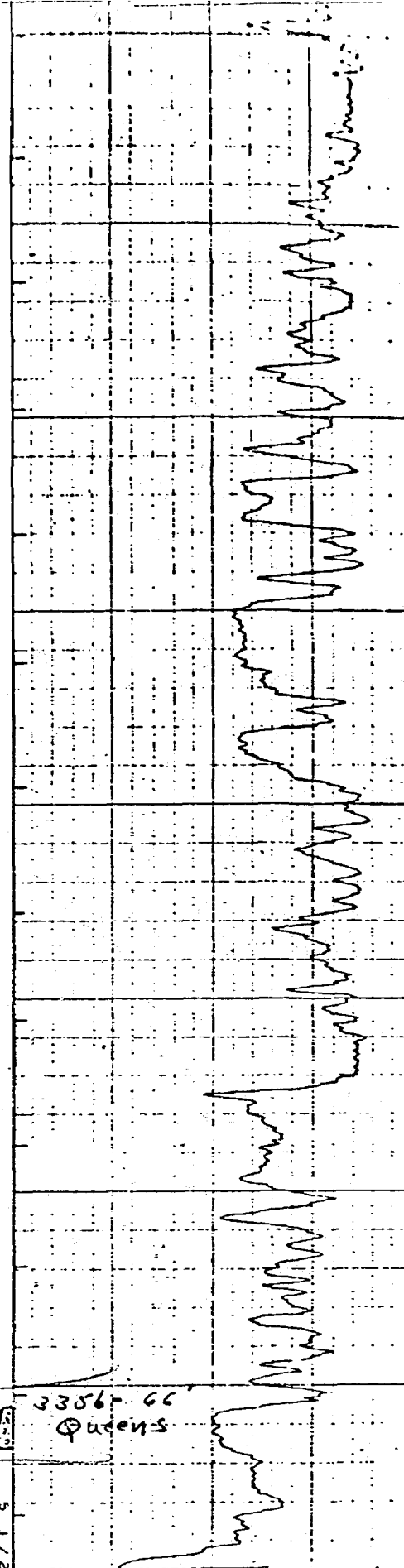
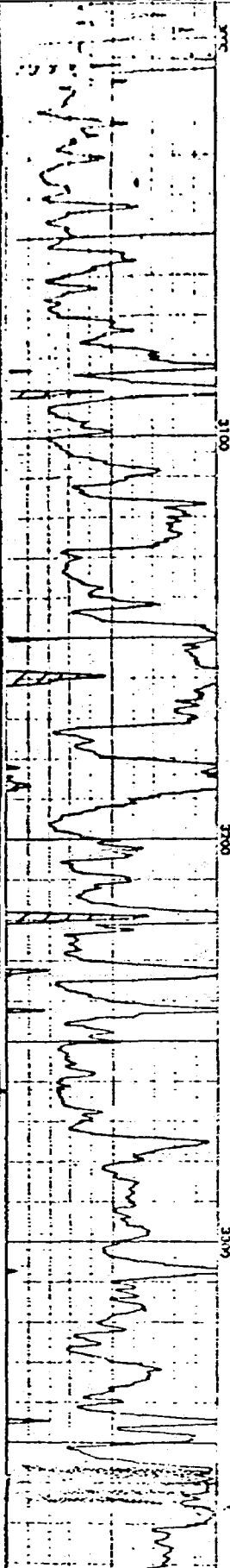
C/p.



BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION

EXHIBIT NO. \_\_\_\_\_

CASE NO. \_\_\_\_\_



2356-66  
Queens

R.D. 3385  
T.D. 3398

V.S. WELCH ACCOUNT N°2  
SHUGART N°1-B  
SHUGART

LEADING SENSITIVITY  
SENSITIVITY PEAKING... 430  
MULTIPLIER... X  
2120 SUPPRESSION... 0

R.D. 3397  
T.D. 3398

B-1

LEADING SENSITIVITY  
SENSITIVITY PEAKING... 62  
MULTIPLIER... X  
2120 SUPPRESSION... 0

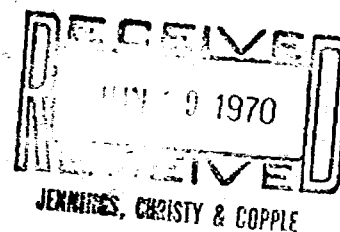
© 1968 CALIBRATION  
ELECTRONICS

MADE IN U.S.A.  
U.S. PAT. 3,111,111



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

P. O. Drawer U  
Artesia, New Mexico 88210



June 18, 1970

Jennings, Christy & Copple  
Post Office Box 1180  
Roswell, New Mexico 88201

Attention: Mr. James T. Jennings

Dear Sir:

Your letter of June 16, 1970 requests approval for Shenandoah Oil Corporation to operate a waterflood in the Shugart Pool by the injection of water into the Yates, Seven Rivers, Queen, and Grayburg formations on oil and gas lease New Mexico 025778 involving the NW $\frac{1}{4}$  and S $\frac{1}{2}$  sec. 33, T. 18 S., R. 31 E., N.M.P.M., Eddy County, New Mexico. You propose to convert to water injection the well No. 1 Shugart "B" located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$  of this section 33.

The plan for operating this waterflood project as proposed in the application, is satisfactory to this office, and hereby approved subject to approval by the New Mexico Oil Conservation Commission and the following:

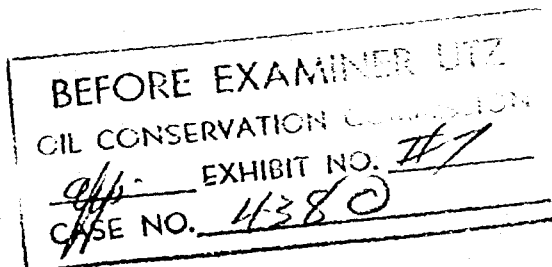
1. A monthly progress report (N.M.O.C.C. form C-120 acceptable) is to be submitted in duplicate to this office showing the volume of water injected and average pressure for the injection wells in the project area.
2. This approval does not preclude the necessity for further approval when the project is expanded to include other wells and leases or the necessity to submit the usual notices and reports on wells involved.

Sincerely yours,

Robert L. Beekman  
Acting District Engineer

cc:  
N.M.O.C.C., Santa Fe  
Roswell  
File  
Accounts

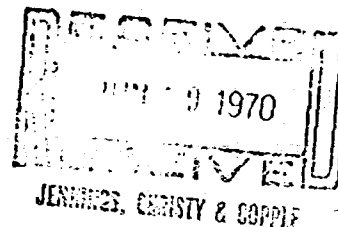
RLB:ih 6/18/70





UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

P. O. Drawer U  
Artesia, New Mexico 88210



June 18, 1970

Jennings, Christy & Copple  
Post Office Box 1180  
Roswell, New Mexico 88201

Attention: Mr. James T. Jennings

Dear Sir:

Your letter of June 16, 1970 requests approval for Shenandoah Oil Corporation to operate a waterflood in the Shugart Pool by the injection of water into the Yates, Seven Rivers, Queen, and Grayburg formations on oil and gas lease New Mexico 025778 involving the NW $\frac{1}{4}$  and S $\frac{1}{2}$  sec. 33, T. 18 S., R. 31 E., N.M.P.M., Eddy County, New Mexico. You propose to convert to water injection the well No. 1 Shugart "B" located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$  of this section 33.

The plan for operating this waterflood project as proposed in the application, is satisfactory to this office, and hereby approved subject to approval by the New Mexico Oil Conservation Commission and the following:

1. A monthly progress report (N.M.O.C.C. form C-120 acceptable) is to be submitted in duplicate to this office showing the volume of water injected and average pressure for the injection wells in the project area.
2. This approval does not preclude the necessity for further approval when the project is expanded to include other wells and leases or the necessity to submit the usual notices and reports on wells involved.

Sincerely yours,

Robert L. Beekman  
Acting District Engineer

cc:  
N.M.O.C.C., Santa Fe  
Roswell  
File  
Accounts

RLB:ih 6/18/70



JAMES T. JENNINGS  
SIM B. CHRISTY IV  
ROGER L. COPPLE  
BRIAN W. COPPLE

LAW OFFICES OF  
JENNINGS, CHRISTY & COPPLE  
1012 SECURITY NATIONAL BANK BUILDING  
P. O. BOX 1180  
ROSWELL, NEW MEXICO 88201

TELEPHONE 622-8432  
AREA CODE 505

June 10, 1970

Oil Conservation Commission  
P. O. Box 2088  
Santa Fe, New Mexico 87501

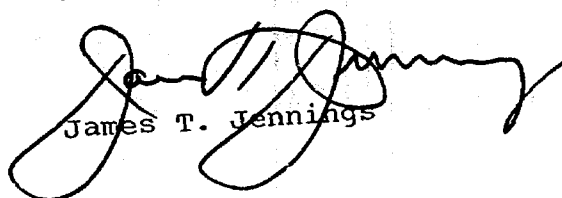
*Case 4380*  
MAIN OFFICE  
RE: CASE NO. 3779, ORDER R-3431 JUN 12 AM

Gentlemen:

In accordance with the provisions of Order R-3431, Shenandoah Oil Corporation is making application for administrative approval of additional water injection well in the Shenandoah Shugart Waterflood Project and its Application in triplicate is enclosed herewith. If there are any questions or if you need any additional information, please call us.

Yours very truly,

JENNINGS, CHRISTY & COPPLE

  
James T. Jennings

JTJ/mb

Encl.

cc: U. S. Geological Survey, Artesia Office w/encl.  
Kersey & Company w/encl.  
Shenandoah Oil Corporation w/encl.

DOCKET MAILED

Date 6-18-70

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

70 JUN 12 AM 9 19

IN THE MATTER OF THE APPLICATION OF  
SHENANDOAH OIL CORPORATION TO CONVERT  
AN ADDITIONAL WELL TO WATER INJECTION  
WELL IN THE SHENANDOAH SHUGART WATERFLOOD  
PROJECT IN THE SHUGART POOL, EDDY COUNTY,  
NEW MEXICO.

*Case 4380*  
CASE NO. ~~3779~~

APPLICATION FOR ADMINISTRATIVE APPROVAL  
OF ADDITIONAL WATER INJECTION WELL

Comes now Applicant, Shenandoah Oil Corporation, and  
hereby makes application for administrative approval of the con-  
version of an additional well to water injection in the Shenandoah  
Shugart Waterflood Project pursuant to Rule 701 E-5 of the Rules  
and Regulations of the Commission and in support thereof states:

1. That by Order No. R-3431 the Commission authorized  
the Applicant herein to institute a waterflood project in the  
Shugart Pool by the injection of water into the Yates, Seven Rivers,  
Queen and Grayburg formations and the Commission designated the  
waterflood project as the Shenandoah Shugart Waterflood Project.

2. That by Administrative Order No. WFX 332 dated Janu-  
ary 29, 1970, the Applicant, Shenandoah Oil Corporation, was  
authorized to inject water into the Yates, Seven Rivers, Queen and  
Grayburg formations in the following described wells:

Shugart A Well No. 9 located in Unit I of Section 29,  
Shugart D Well No. 7 located in Unit D of Section 30,  
Shugart D Well No. 9 located in Unit M of Section 20,  
Shugart A (APCO) Well No. 2 located in Unit B of Section 29,  
Shugart A (APCO) Well No. 4 located in Unit F of Section 29,  
and Kenwood-Federal (Mayer) Well No. 1 located in Unit N  
of Section 19, all in Township 18 South, Range 31 East,  
N.M.P.M.

That on March 23, 1970, Applicant commenced water injection in said  
wells.

3. That Kersey & Company, an offset operator, is operating a waterflood project offsetting Applicant's project located in Section 4, Township 19 South, Range 31 East, N.M.P.M., and that Applicant has entered into a Cooperative Agreement for Waterflooding Shugart Field with Kersey & Company, a xerox copy of which is attached hereto and marked Exhibit "1". A plat reflecting the wells into which water is to be injected pursuant to the terms of said agreement is attached hereto and marked Exhibit "2".

4. That the offset operator, Kersey & Company, has heretofore filed an Application with the Commission to inject water into the Welch "A" No. 2 Well located in the SW $\frac{1}{4}$ NE $\frac{1}{4}$  Section 4 and the Welch "A" No. 4 Well located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$  Section 4, Township 19 South, Range 31 East, N.M.P.M.

5. That the Applicant desires to convert its Shugart "B" No. 1 Unit <sup>0</sup> Well located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$  Section 33, Township 18 South, Range 31 East, N.M.P.M., to water injection.

6. That the Applicant will inject fresh to brackish and produced water into the Yates and Queen formations; that the injection well will be completed in the same manner as other injection wells on the project in that the Applicant will use plastic coated tubing and a downhole Baker flow regulator control valve and packers.

7. That the conversion of the additional well to water injection is necessary for an efficient injection pattern and will insure the protection of correlative rights and will result in the increased ultimate recovery of oil and prevent waste.

8. In support of this Application and in accordance with the provisions of Rule 701-B, Applicant has heretofore submitted in connection with its original application for waterflood project a plat marked as Exhibit A therein showing the location of Applicant's project relative to the ownership of all other leases within a two mile radius which are producing from one or more of the same geologic formations, and Applicant hereby adopts said exhibit by reference and Applicant hereby submits the following exhibits in addition to those heretofore mentioned:

Exhibit "3": A plat showing the field pattern, the eleven injection wells and the well which Applicant proposes to convert to a water injection well.

Exhibit "4": Diagramatic sketch of proposed injection well showing tops of cement, perforations and depths.

Exhibit "5": Log of proposed injection well.

WHEREFORE, Applicant requests that the Secretary-Director of the Commission approve the expansion of the Shenandoah Shugart Waterflood Project to include the injection well described above, and that Applicant be authorized to inject water into the Yates and Queen formations in the injection well located in Unit I of Section 33, Township 18 South, Range 31 East, N.M.P.M.

Respectfully submitted,

SHENANDOAH OIL CORPORATION

By 

For JENNINGS, CHRISTY & COPPLE  
Attorneys for Applicant  
P. O. Box 1180  
Roswell, New Mexico 88201

COOPERATIVE AGREEMENT FOR WATERFLOODING

SHUGART FIELD

EDDY COUNTY, NEW MEXICO

STATE OF NEW MEXICO       )  
                                  ) ss  
COUNTY OF EDDY            )

THIS AGREEMENT, made and entered into by and between the parties named as operators and owners of the 3 leases described below:

WITNESSETH:

WHEREAS, KERSEY & COMPANY (KERSEY) is the owner and operator of the "Nickson "A" Lease covering the NW/4 NW/4 of Section 4, Township 19 South, Range 31 East, Eddy County, New Mexico; and

WHEREAS, Kersey is the operator and an owner of the "Welch "A" Lease covering the E/2 NW/4, W/2 NE/4 and NE/4 NE/4 of Section 4, Township 19 South, Range 31 East, Eddy County, New Mexico; and

WHEREAS, Shenandoah Oil Corporation is the owner and operator of Shugart "B" Lease covering the S/2 and NW/4 of Section 33, T18S, R-31-E; Eddy County, New Mexico; and

WHEREAS, the parties hereto agree that a cooperative waterflood program having as its purpose the creation or attempted creation of an artificial water drive by the injection of water through the injection wells hereinafter provided for into the Queen Sand Formation is a reasonable producing and engineering practice; and

WHEREAS, the parties desire to institute and operate such a program with the view of increasing the ultimate recovery of oil, gas, and associated minerals from the Queen Sand formation and protecting the respective correlative rights of such parties;

NOW, THEREFORE, in consideration of the premises and mutual covenants and agreements herein contained, the parties hereto agree as follows:

1.

Shenandoah shall convert to a water injection well its "Shugart "B" No. 1 located in SW/4 SE/4, Section 33, Township 17 South, Range 31 East, Eddy County, New Mexico.

Kersey shall convert to water injection wells its "Welch "A" No. 2 well, located in SW/4 NE/4 Section 4; and the Welch "A" No. 4 well, located in NE/4 NW/4 Section 4 all in Township 19 South, Range 31 East, Eddy County, New Mexico.

Said leases and the wells located thereon to be converted to water injection are shown on the plat attached hereto as Exhibit A and made a part hereof.

After this agreement is executed by all parties, each party shall proceed with all reasonable dispatch to convert its well or wells to water injection and such conversion shall be completed with due diligence, but in no event later than three (3) months after execution of this agreement has been completed. The entire cost and expense incurred in converting and equipping each such well into an injection well and the cost of operating same as an injection well shall be borne entirely by the parties owning such well.

2.

Pressured water shall be furnished to Shenandoah, by Kersey, at a cost to Shenandoah of \$0.0215 per barrel of water delivered (a barrel being defined as 42 U. S. gallons) or at the exact cost that Shenandoah is currently purchasing water from the Double Eagle Corporation of New Mexico currently servicing Shenandoah's Shugart Flood now in operation. If this rate should be changed by Double Eagle due to Federal and State regulations then the above rate \$0.0215 per barrel will be changed accordingly; but no more per barrel than Shenandoah pays to Double Eagle.

This pressured water shall be treated in such a manner as to prevent corrosion to the injection system and well equipment. A 2" internally plastic coated line, or the equivalent shall be installed to Shenandoah's lease line, at a point nearest to the Shugart B-1 well and it will be at the expense of Shenandoah to continue this line to its well location.

In the event that later in the flood life Kersey desires to furnish Shenandoah with commingled produced and fresh water, it shall be agreed that this water shall be of reasonable quality and to the satisfaction of Shenandoah.

3.

Each of the parties hereto agrees with all reasonable dispatch to commence the injection of water through the aforesaid well or wells on its leases and to continue the injection program until the entire productive interval of the Queen Sand formation is being waterflooded at such rate as may be necessary to result in and maintain, insofar as is reasonable practicable, equal advancement of the flood front around each injection well, and thereafter to continue injection at such rates. To such end, the parties hereto shall endeavor to attain a water injection rate in each injection well of 300 barrels of water per day, or if this rate is unobtainable, whatever amount can be injected at 2,000 psi maximum surface pressure. The injection wells shall be kept in proper repair. Each party agrees to provide the other party, monthly, with a record of the wellhead pressure of each injection well and of the daily volumes of water injected into each well covered by this agreement measured by a suitable water meter. Upon reasonable request, each party agrees to make its records pertaining to water injection operations available to the other parties and to permit the other parties to observe operations or tests of its injection wells.

4.

It shall be the responsibility of each party hereto to inject water into the injection wells to be operated by each party hereunder and all costs and expenses incurred in connection with injection water into said wells shall be borne by the party operating said well. It shall be the responsibility of Shenandoah to install and maintain a water meter at its well and to keep this meter in proper working order at all times.

5.

The duties, liabilities, and obligations of the parties hereto are several and not joint or collective and nothing contained herein shall ever be construed as imposing a partnership obligation or liability with regard to any of the parties hereto. Each party shall be individually responsible for producing oil from its own wells and shall be entitled to all production from its wells and leases, and each party hereto shall be individually responsible for only its obligations as set out herein and shall be liable only for its costs and expenses as herein stipulated.

6.

In the event any party to this agreement is rendered unable, in whole or part, by force majeure to carry out its respective obligations under this agreement, then such obligations, so far as they are affected by such force majeure, shall be suspended during the continuance of any inability so caused; however, reasonable efforts shall be made to remedy such cause with all reasonable dispatch. The term "force majeure", as employed herein, shall mean acts of God, strikes, lockouts, riots, epidemics, lightning, earthquakes, arrests, explosion, priority regulations of any government having sovereignty, accident to machinery or pipe, altercations, failure of water supply, injunctions, and any other causes, whether or not of the character above enumerated, not within the control of the party claiming suspension and which, by the exercise of due diligence, such party is unable to overcome. It is understood that the settlement of strikes or lockouts shall be entirely within the discretion of the party having the difficulty and the requirement that reasonable efforts shall be made to remedy the cause promptly shall not require the settlement of strikes or lockouts by acceding to the demands of the opposing person or organization when such course is inadvisable in the discretion of the party having the difficulty. Any party hereto that is unable, in whole or in part, to carry out its respective obligations because of such force majeure, shall, within ten (10) days after the occurrence of the interference giving rise to such force majeure, give written notice to the other party hereto stating reasonable particulars of such interference.

7.

This agreement shall remain in force and effect for a period of one year from and after the first day of the month immediately following the first injection of water into any of the aforementioned injection wells and shall continue in effect thereafter unless and until terminated in whole or in part as provided below.



At the end of the above-mentioned period of one year or at any time thereafter, any party who is named above as a lease operator may abandon water injection into any or all of its wells by giving the other lease operators at least thirty (30) days after receipt of such notice to take over the said injection well or wells, together with the casing therein by paying the abandoning party \$1000 per well plus the agreed on salvage value for whatever additional equipment the acquiring party desires to purchase and the acquiring party or parties shall assume full responsibility, cost, expense, and liability for the proper plugging of said well or wells on ultimate abandonment. In the event said option is exercised by any non-abandonment party, to the extent that it has the right to do so, abandoning party shall assign to acquiring party or parties its right to continue operation of said injection well or wells, it being understood that should any acquiring party desire to continue operations under the provisions of this paragraph, such acquiring party or parties will obtain any necessary consent of the surface owners or mineral owners for continued water injection.

8.

This agreement shall be subject to all valid and applicable state and federal laws, rules, regulations, and orders, and the operations conducted hereunder shall be performed in accordance with all such laws, rules, regulations, and orders.

Each of the nonoperating parties hereto agrees that all notices, reports, and communications permitted or required hereunder may be given to the operator of its lease. Such notices, reports, and communications shall be deemed to have been properly given or delivered when sent by United States mail or Western Union telegram, postage or charges prepaid, and addressed to the party to whom such notice is given as follows:

Kersey & Company  
P. O. Box 316  
Artesia, New Mexico 88210

Shenandoah Oil Corporation  
1500 Commerce Bldg.  
Fort Worth, Texas 76102

Notice shall be given when deposited in the United States post office or with Western Union Telegraph Company, postage or charges prepaid. Each party hereto shall have the right to change its address for all purposes of this agreement by notifying the other party in writing.

10.

The terms, covenants, and conditions hereof shall inure to the benefit of and be binding upon the parties hereto, their successors and assigns.

IN WITNESS WHEREOF, this agreement is entered into as of the

9<sup>th</sup> day of April, 1970.

ATTEST:

Assistant Secretary

SHENANDOAH OIL CORPORATION

By P. B. T.

Vice President - Secondary Recovery

ATTEST:

Leibel Grinlan  
Assistant Secretary

KERSEY & COMPANY

By Harold Kany

ATTEST:

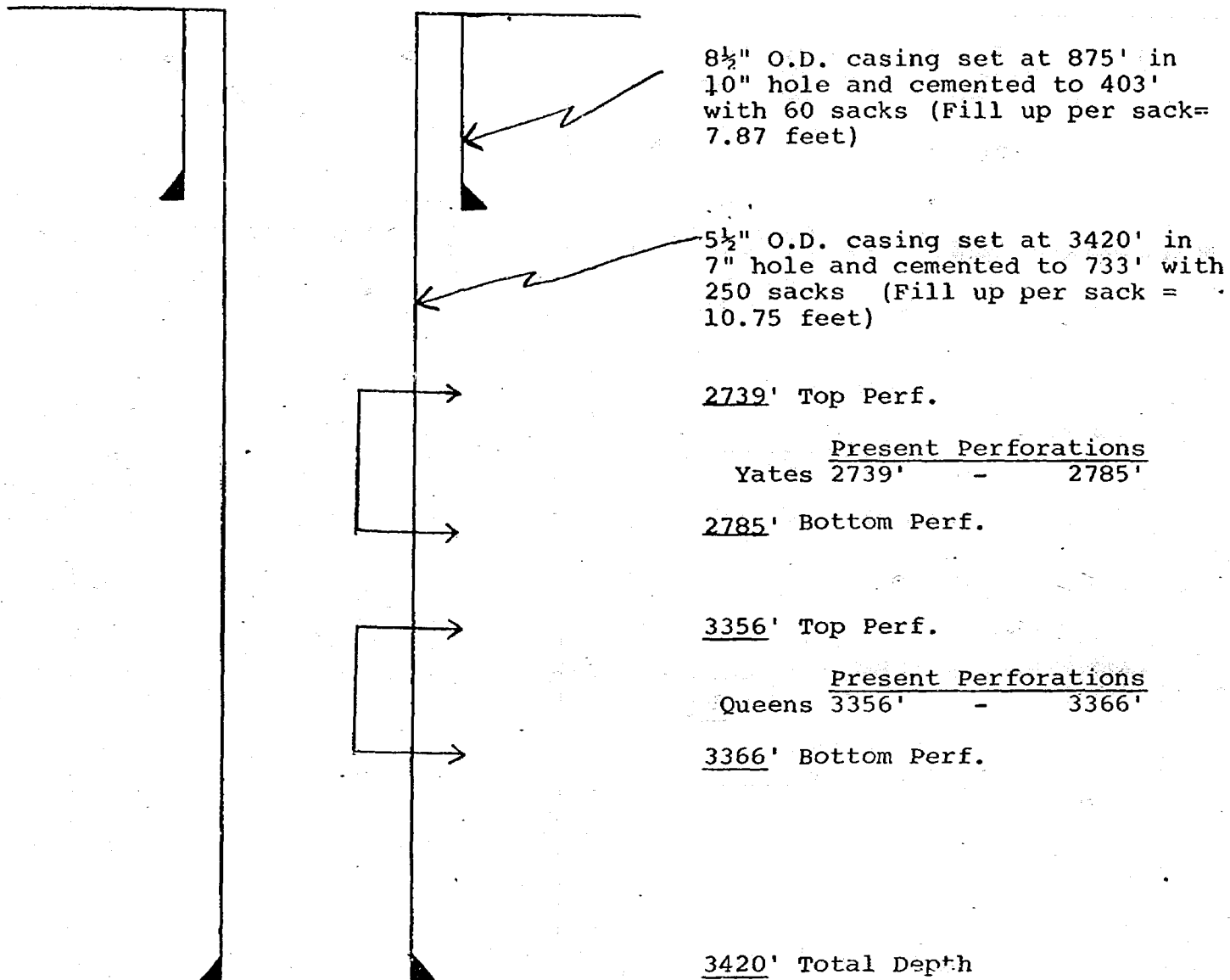
Leibel Grinlan  
Assistant Secretary

By Leland A. Withers





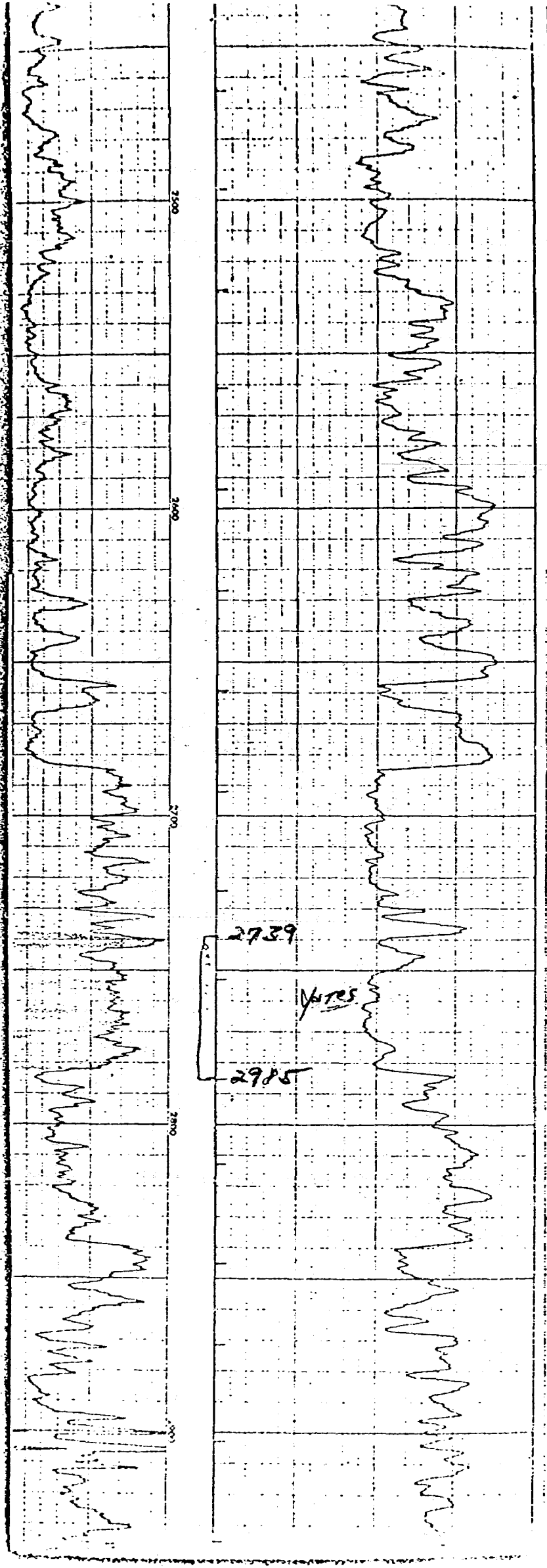
SHUGART B-1  
UNIT I 330' FSL & 2310' FEL  
SECTION 33-18S-31E  
EDDY COUNTY, NEW MEXICO

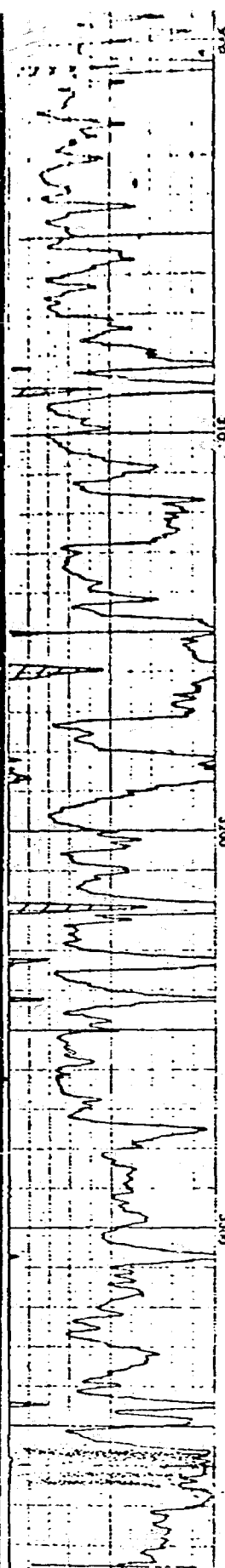


Note:

Perforation log will be run to check present perforations. Internally plastic coated tubing will be run with tension, type packer set at approximately 3340'.



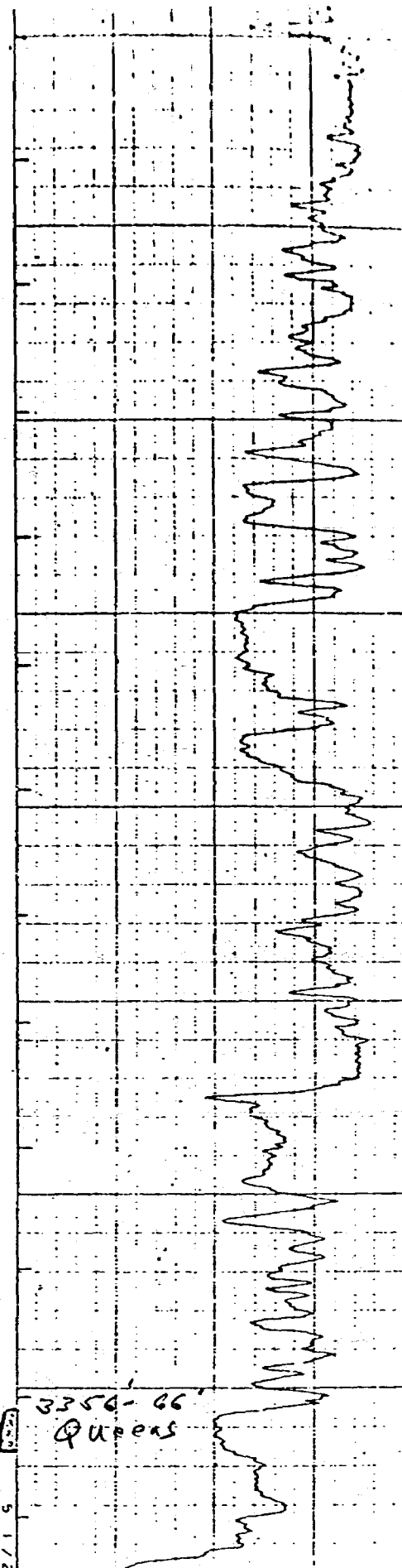




R.D. 3385  
T.D. 3398

V. S. WELCH ACCOUNT NO. 2  
SHUGART N°1-B  
SHUGART

LEADING SENSITIVITY  
SENSITIVITY READING... 50  
MULTIPLIER... 1  
ZERO SUPPRESSION... 0



3356-CC  
Queens

R.D. 3397  
T.D. 3398

B-1

LEADING SENSITIVITY  
SENSITIVITY READING... 50  
MULTIPLIER... 1  
ZERO SUPPRESSION... 0



DRAFT

GMH/esr

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. 4380

Order No. R-3992

APPLICATION OF SHENANDOAH OIL CORPORATION  
FOR A WATERFLOOD PROJECT, EDDY COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 1, 1970,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this        day of July, 1970, 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, Shenandoah Oil Corporation,  
seeks authority to institute a waterflood project in the       

Unit Area, Shugart Pool.

by the injection of water into the Yates and Queen formations  
its Shugart "B" Well No. 1, located in the SW/4 SE/4 of Sec-  
tion        through        injection wells in Section       ,

tion 33, Township 18 ~~North~~ South, Range 31 ~~West~~ East,  
NMPM, Eddy County, New Mexico.

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

(4) That the proposed waterflood project should result in  
the recovery of otherwise unrecoverable oil, thereby preventing  
waste.

(5) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shenandoah Oil Corporation, is hereby authorized to institute a waterflood project in the ~~Unit Area,~~ Shugart Pool by the injection of water into the Yates and Queen formations ~~through the following described wells in Township~~ ~~North, South, Range~~ ~~West, East, NMPM,~~ ~~County, New Mexico.~~ through its Shugart "B" Well No. 1, located in the SW/4 SE/4 of Section 33, Township 18 South, Range 31 East, NMPM, Eddy County, New Mexico.

(2) That the subject waterflood project is hereby designated the Shenandoah Shugart "B" Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) 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.