CASE 3462: Application of CITIES SERVICE for a waterflood project, Lea County, New Mexico.	
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Application, Transcripts,

HPP/ICATION,
TYANSCHIPTS,
SMALL Exhibits
ETC.

## 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. 3462 Order No. R-3134

APPLICATION OF CITIES SERVICE OIL COMPANY FOR A WATERPLOOD PROJECT, LEA COUNTY, NEW MEXICO.

### ORDER OF THE COMMISSION

### BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 28, 1966, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

MOW, on this \_\_\_\_\_\_day of October, 1966, 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, Cities Service Oil Company, seeks permission to institute a waterflood project in the Southeast Maljamar Grayburg-San Andres Unit Area, Maljamar (Grayburg-San Andres) Pool, by the injection of water into the Grayburg-San Andres formation through eleven injection wells in Sections 29, 30, and 32, Township 17 South, Range 33 East, NMPM, Lea 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 applicant further seeks the establishment of an administrative procedure whereby additional wells, within the said unit area, could be placed on water injection.
- (6) 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, Cities Service Oil Company, is hereby authorized to institute a waterflood project in the Southeast Maljamar Grayburg-San Andres Unit Area, Maljamar (Grayburg-San Andres) Pool, by the injection of water into the Grayburg-San Andres formation through the following-described wells in Township 17 South, Range 33 East, NMPM, Lea County, New Mexico:

```
Cities Service
               Shell St. "A" # 1 1980' FSL 660' FWL Section 29
              Shell St. "A" # 2
                                  660' FSL 1980' FWL Section 29
Cities Service
Cities Service Philmex St. "A" # 6 990' FNL 2310' FEL Section 29
Cities Service Philmex St. "A" # 5 2310' FML 990' FEL Section 29
                             # 3 1980' FNL 1980' PWL Section 29
Phillips
               Philmex
                                  660' FNL 660' FWL Section 29
                             # 7
               Philmex
Phillips
               State "A"
                             # 2 1980' FSL 1980' FBL Section 29
Shell
               State "A"
                                  660' FSL 990' FEL Section 29
Shell
                             # 3
Cities Service Ohio Jones "A" # 1 1980' FNL 660' FEL
                                                      Section 30
                                  660' FSL 660' FEL Section 30
                            # 3
              U.S. Minerals
Phillips
Cities Service Cockburn St. "A" # 3
                                 660' FNL 1980' FEL Section 32
```

- (2) That the subject waterflood project is hereby designated the Southeast Maljamar Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided, however, that the Secretary-Director of the Commission may approve the placing of additional wells, within the said unit area, on water injection as may be necessary to complete an efficient waterflood injection pattern.
- (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.

-3-CASE No. 3462 Order No. R-3134

(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

JACK M. CAMPBELL, Chairman

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

dearnley-meier reporting service, inc.

1120 SIMMS BLDG. . F. O. BOX 1092 . PHONE 243-6491 . ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 28, 1966

### EXAMINER HEARING

IN THE MATTER OF:

Application of Cities Service Oil Company for a unit agreement, Lea County, New Mexico.

Application of Cities Service Oil Company for a waterflood project, Lea County, New Mexico.

Case No. 3461

Case No. 34

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING



SPECIALIZING IN:

EXPERT TESTIMONY, DAILY COPY,

ALBUQUERQUE, NEW MEXICO
ALBUQUERQUE, NEW MEXICO

243-6691

MR. UTZ: Case 3461.

MR. HATCH: Application of Cities Service Oil Company for a unit agreement, Lea County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin and Fox, appearing for the applicant. We would propose that Case 3461 be consolidated with Case 3462 for purposes of testimony since they pertain to the waterflood on the same project.

MR. UTZ: Cases 3461 and 3462 will be consolidated. Separate orders will be written on both cases.

MR. KELLAHIN: We have one witness.

(Witness sworn.)

(Whereupon, Cities Service's Exhibits 1 through 9 were marked for identification.)

MR. UTZ: Are there other appearances? You may proceed.

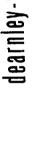
### E. F. MOTTER

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

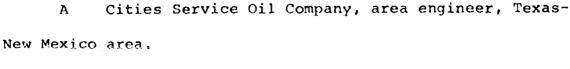
### DIRECT EXAMINATION

### BY MR. KELLAHIN:

- Will you state your name, please? O
- E. F. Motter.
- By whom are you employed and in what position? Q







- Q Have you previously testified before the Oil Conservation Commission of New Mexico and made your qualifications a matter of record?
  - A Yes, numerous times.

    MR. UTZ: He's qualified.
- Q Mr. Motter, are you familiar with the application of Cities Service Oil Company in Cases 3461 and 3462?
  - A Yes, I am.
- Q Briefly state what is proposed by Cities Service in these two cases.
- A We propose under 3461 to unitize an area comprising approximately 1,080 acres in the Southeast Maljamar Unit.

  It will be called -- it's in the Maljamar Pool and propose to initiate waterflood on this unit.
- Q Now, referring to what has been marked as Exhibit No. 1, would you identify that exhibit?
- A Yes, this is a Unit Agreement. The unit is comprised of approximately 1,080 acres, of this amount 280 are Federal lands, 800 are State lands.
  - Q No fee lands?
- A No fee lands. As of just a few minutes ago we have all working interest signed, all royalty interest signed;



243-6691 1294 •

BOX EAST

SIMMS BLDG. •

1203

there are three overriding royalty interests holding about three-tenths of one percent of the total of phase one participation that have not signed. One has promised to sign but has not returned the instrument and has no questions or obligations. The second party, who was recently contacted, has lost the instrument; he has been sent additional copies; he will sign.

The third interest is on a Phillips lease. Royalty payment has been suspended by Phillips since 1960 since they cannot find the party. Cities Service has been unable to find the party.

- What percentage did you say this amounted to?
- Approximately three tenths of one percent of the total royalty payment under phase one.
- Has the form of the Unit Agreement been submitted to the United States Geological Survey and the State Land Office?
  - Yes, they have.
  - What is the unitized formation?
- Unitized formation is described on page three and it is described as "the stratigraphical interval underlying the unit area, extending from the top of the Grayburg formation down to and including a depth of 100 feet below the top of the San Andres formation." Basically this is known



BOX 1

CONVENTIONS

- Is that the same area that you propose to waterflood in the other case?
  - Yes, that's correct.
- Referring to what has been marked as Exhibit No. 2, would you identify that exhibit, please?

Yes. This is a plat of the general area, showing all offset operators in a range of two miles. These plats were filed with the original application. I would like to point out that to the west is the Continental operated MCA Unit which is flooding basically the same formation, or will be flooding the same formation in this area. To the north is Pennzoil waterflood on their State, Phillips State lease. They already are under flood. Sunset International to the north has their Malgray Unit already under flood, and the Commission has just heard the Pennzoil application on the State lease immediately east of our proposed unit.

I might add that to the south this dips off into the Delaware Basin rather rapidly and the formation was waterbearing, Premier sand.

- Is that the area to the south immediately adjacent to your unit was not included in the waterflood project?
  - That is correct.
  - Referring to what has been marked as Exhibit 3,



SPECIALIZING IN: DEPOSITIONS,

would you identify that exhibit?

A Yes. Exhibit 3 is a somewhat enlarged plat of the proposed unit area and it shows two cross section traces from north to south. This also is the same basic plat we will show a little later, and it has certain symbols on there that indicate completion of other wells, Queen sand and Abo wells in the area. The wells identified were just a dot from the Premier sand wells.

- Q Now, your cross section shown on that exhibit are identified as Exhibit 4 and Exhibit 5, is that correct?
  - A That's right.
  - Q Would you discuss those exhibits, please?
- A Exhibit 4 is the north-south cross section A-A<sup>1</sup>, and for the benefit of the Examiner I would like to point out that up at the top these wells are identified and the last well on the unit to the south is the Cities Service Ohio State A-5, and I think that this very predominantly shows the amount of relief that occurs from this well to the next producing wells to the south. That is the reason those particular wells were not included in the unit.

We have the different porosity zones in the Grayburg zone on this particular map; however, our zone of prime interest is the Premier sand shown as Zone 6.

Q Does the cross section show that the zone is



1203

continuous throughout the area you propose to flood?

Yes, it does. Cross section B-B1, which is Exhibit No. 5, is one row of wells immediately to the west, and basically the same information applies. I would like to point out again for the Examiner's information, that the Cities Service Cochran A-3 is the southernmost well on the unit and the other three wells shown there merely are to indicate the amount of relief in the Premier sand, or even the Grayburg sand, sa far as that's concerned.

- There again, the cross section does show that the formation is continuous?
  - That's correct.
- And in your opinion is it susceptible of a successful waterflood project?

Yes, we feel it is, not only from investigation of our wells, but observance of the other, what we consider successful floods in the area.

- Including those that are directly offsetting this project?
  - Α Right.
- Now, referring to what has been marked as Exhibit No. 6, would you identify that exhibit?
- Yes. This is a complete production performance history of all wells in the unitized area. I would like to



point out that although this curve looks rather flat, this is caused by the additional development of wells through the years even up to and through the latter part of '64, one well was recompleted in here which added a considerable amount of production. The average production, however, is six barrels per well per day as of the current time. This area has accumulated to July 1st of this year 2,219,923 barrels of oil.

- Does the production curve show that the area is at an advanced stage of depletion?
  - Yes, I would say so.
  - And it is ready for a secondary recovery project?
  - Yes.
- What was the producing mechanism originally in this field?
- Probably solution gas. There's evidence to the south of a water drive, but those particular wells are not in our unit area.
- Referring to what has been marked as Exhibit No. 7, would you identify that?
- Yes, this is our proposed injection pattern. This is a somewhat enlarged map of the original cross section trace map. We have the legend down below which shows the Grayburg-San Andres Queen wells and Abo wells.

Now on our legend are the color symbols. For a matter



• PHONE 243-6691 PHONE 256-1294 •

P.O. BOX 1

of record, the wells in red are the wells which we propose to put on injection upon approval of the Commission. We're seeking, of course, permission to do all of those at this time. The wells which are circled in green are the ones which we have electric logs available on which will be given as a later exhibit.

Again, this shows the waterfloods around the area. The wells circled with a solid circle are the wells currently on injection. You might note that in the northwest of the Cities Service proposed unit is a proposed well to be drilled and that will be done sometime in the future when we can get cooperation with Continental to the west. They feel they will be ready to inject water there sometime this coming year.

- Q Does the exhibit show that you have a complete injection pattern proposed for immediate installation?
- A Yes, it does, and this is a five-spot pattern which is a continuation of a pattern already established in the area by the other offsetting units.
- Q But actually you will need Commission approval for the injection of water in the well you propose to drill, is that correct?
  - A That's correct.
- Q Do you ask that the Commission create an administrative procedure whereby you can add additional injection wells,



243. 1294

P.O. BOX 1

although they have not had a response?

- A Yes. We would desire this when we are able to cooperate with offset units, we would like to obtain, of course, administrative approval to put only three more wells on injection. This will complete the pattern of the entire unit.
  - Q Could you identify those wells?
- A Yes, one well I have already spoken of will be the Cities Service Ohio "A" No. 5 to be drilled, and that is in the Northwest of the Northeast of Section 30. The other well is the Phillips U. S. Minerals No. 1, which is in the Northwest of the Southeast of Section 30; and the other well is the Cities Service Ohio State No. 5, which is in the Southeast of the Northeast of Section 32. These are all in Township 17 South, Range 33 East.

MR. UTZ: Is that the well with the green circle around it?

- A Yes, that indicates it has a log on it.
- Q (By Mr. Kellahin) Now, Mr. Motter, would you refer to Exhibits marked as 8-A through 8-K inclusive?
- A This is a series of schematic diagrams on all wells which we propose for injection at this time. These wells show the casing that has been set, the number of sacks of cement used, the tops of the cement, and our proposal



ALBUQUERQUE, NEW MEXICO
ALBUQUERQUE, NEW MEXICO

243-66 1294

of the tubing and packers to be used. We propose, of course, to use corrosion resistance lining in the tubing as well as similar material on the packers. The annulus will be noted as normal with probably treated fresh water. Injection into this flood is proposed in a volume of approximately 300 barrels a day, perhaps a little more.

- In each case the injection will be through a coated tube under a packer?
  - Yes. Α
  - And the annulus will be filled with an inert fluid? Q
  - Well water, treated water.
  - Referring to what has been marked as 9-A through Q 9-E, would you identify those?
  - Yes. These are logs, or I should say these are available logs from injection wells; I believe that there are five that we are currently asking for approval, and the one Ohio State No. 5. Each well has been marked with a red line the interval of the Premier sand that we propose to flood.
  - What's the source of water for this proposed flood, Q Mr. Motter?
  - We plan to purchase water from the Continental MCA Unit, this is Ogallala water, and I believe our contract calls for approximately not over 5,000 parrels a day. I believe this water comes from six or eight miles to the east



dearnley-meier 👙 🐧

of the MCA Unit. They do have excess volumes, which we hope to be able to obtain or do plan to obtain.

- Q As I understand, you previously testified you propose to inject approximately 300 barrels per day per well?
  - A That is correct. It may go to 350 at times.
- Q How long do you expect it will be before you get a response?
  - A Approximately six months.
- Q Will this project be governed by the provisions of Rule 701, and particularly 701-E?
  - A Yes.
- Q Were Exhibits 1 through 9, including 9-A through 9-E, inclusive, prepared by you or under your supervision?
- A Well, yes, with the exception of 9, these are all logs which were not prepared under my supervision, but all the others were.

MR. KELLAHIN: At this time I would like to offer in evidence Exhibits 1 through 9-E.

MR. UTZ: Without objection, those exhibits will be entered into the record of this case.

(Whereupon, Cities Service's Exhibits 1 through 9 were offered and admitted in evidence.)

MR. KELLAHIN: That's all I have on direct

examination,



ALBUQUERQUE, NEW MEXICO
ALBUQUERQUE, NEW MEXICO

PHONE 243-6
 PHONE 256-1294

### CROSS EXAMINATION

### BY MR. UTZ:

Did you present these schematics to the State Q Engineer's office?

Yes, sir, they were delivered to Mr. Kellahin and I assume he delivered them to Mr. Irby.

MR. KELLAHIN: They were delivered to Mr. Irby, yes, sir.

MR. UTZ: I don't have any letters.

MR. HATCH: There's a letter in one of these.

MR. UTZ: Did you receive anything from him?

MR. KELLAHIN: I never received anything from him, no, sir.

(By Mr. Utz) He says he talked to Mr. Kellahin Q and that Cities Service Ohio State No. 5 in the Southeast of the Northeast of Section 32, that's the one you referred to, and the Phillips U. S. Minerals No. 1 in the Northwest of the Southeast, Section 30, it's another one you referred to as a future well, the Cities Service Ohio Jones proposed in the Northwest, Northeast of Section 30, that would be what you referred to as the Jones No. 5, right?

Α Right.

Are to be handled by administrative action later. There's no objection to the granting of the application



provided that the three above-mentioned wells are not considered as a part of this application. I note on your schematics, Mr. Motter, that, for example, the Cochran State A-3 --Α Yes.

-- the top of the cement is 1100 feet; is there anything above 1100 feet in the way of cement, anything to shut off water?

Mr. Utz, probably mud was in there. These wells were drilled with cable tools. These are some that we acquired in the Carper purchase approximately a year ago, and I would assume there's probably nothing but the annulus is laid even with mud from that point up.

I would like to point out that if you are in a concern of fresh water, that this is below the Caprock and there is very little water in the area. There's a few wells, but barely enough for household consumption.

- And that same answer would be true for the other wells which do not have cement circulated to the surface?
  - Yes, that is correct.
- Do we have anywhere a complete and accurate list of the location of all your injection wells?
  - I believe they were in the application. MR. KELLAHIN: No.



MR. UTZ: I believe there was one of these cases that didn't have, and I believe this is it.

MR. KELLAHIN: I didn't have them.

A I will be happy to give you the location for the record.

Q (By Mr. Utz) Why don't you make us a list of the locations, that is the record is clear enough as far as the plat is concerned, but we would like the footage locations of all your wells. If you'll just give us a copy of that it will save us going to the well files.

A Fine. I'll be glad to furnish that.

MR. UTZ: Any other questions, statements? The witness will be excused.

(Witness excused.)

MR. UTZ: The case is taken under advisement.



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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATE MENTS. EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BIDG. • P.O. BOX 1052 • PHONE 243-6691 • AIBUQUERQUE, NEW MEXICO 1203 FIRST NATIONAL BANK EAST • PHONE 2:56-1294 • AIBUQUERQUE, NEW MEXICO

WITNESS

E. F. MOTTER

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Direct Examination by Mr. Kellahin



Albuquerque, NEW MEXICO
Albuquerque, NEW MEXICO

STATE OF NEW MEXICO ) SS COUNTY OF BERNALILLO )

I, ADA DEARNLEY, 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 12th day of October, 1966.

NOTARY PUBLIC

My Commission Expires: June 19, 1967.





### CITIES SERVICE OIL COMPANY

Box 69 Hobbs, New Mexico 88240 Telephone: 505 EX 3-2177

October 3, 1966

Maria Carresta de

\*66 Oct 4 PM 3 41

E. A. Utz P. O. Box 871 Santa Fe, New Mexico

Dear Mr. Utz:

In compliance with your request on our recent hearing for the South East Maljamar-Grayburg-San Andres Unit, we are enclosing the location for the injections wells. These locations will be stipulated by footage as requested.

Yours truly,

CITIES SERVICE OIL COMPANY

EF Meine

E. F. Motter oyeke Division Engineer

EFM/CLC/bg

Cities Service Shell St. A #1

Cities Service Shell St. A #1

Cities Service Shell St. A #2

Cities Service Philmex St. A #6

Cities Service Philmex St. A #6

Cities Service Philmex St. A #5

Phillips U.S. Minerals #3

Phillips Philmex #7

Shell State A #2

Shell State A #2

Shell State A #2

Shell State A #3

660' 1/8 1980'/E/of	Sec.	32-175-33E
1980FNLE 660'FEL	Sec.	30-17S-33E
1980 1/57 660 1/1/corest corner	Sec.	29-17S-33E
660' SE 1980'FHILDE SHEEFNOR	Sec.	29-17\$-33E
990 1 NE 2310 1 1 10	Sec.	29-17S-33E
2310 1/ 1/2 990 1/ 1/06 NE corner	Sec.	29-17S-33E
660 F S E 660 FEL 66 E	Sec.	30-17\$-33E
1980 HLE 1980 FULF III	Sec.	29-17S-33E
660 FALE 660 F WAS THE	Sec.	29-17S-33E
1980 F \$18 1980 F #Lof SE corner	Sec.	29-17S-33E
660 FEE 990 FE (05-55-00000)	Sec,	29-17S-33E

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

October 18, 1966

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

Dear Sire

Reference is made to Commission Order No. R-3134, recently entered in Case No. 3462, approving the Cities Service Southeast Maljamar Waterflood Project.

Injection is to be through the eleven authorized water injection wells which shall each be equipped with tubing and packers, said packers being set as low as is practicable.

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 1036 barrels per day when the Southeast Waterflood allowable factor is 42.

Please report any error in this calculated maximum allowable immediately, both to the Santa Pe 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

### OIL CONSERVATION COMMISSION

P. O. BOX 2088

### SANTA FE. NEW MEXICO

-2-Mr. Jason Kellahin Santa Pe, Hew Mexico

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 unitisation, 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

ALP/DSM/ir

CCI

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

Oil Conservation Commission Hobbs, New Mexico

## GOVERNOR JACK M. CAMPBELL CHAIRMAN

## State of New Mexico

## Bil Conservation Commission

LAND COMMISSIONER GUYTON B. HAYS MEMBER

STATE GEOLOGIST A. L. PORTER, JR. SECRETARY - DIRECTOR

P.O. JOX 2088 SANTA FE

October 14, 1966

Re:	Case No3462
	Order No. R-3134 Applicant:
	CITIES SERVICE OIL COMPANY

Dear Sir:

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

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

A. L. PORTER, Jr.

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC \*
Artesia OCC Aztec OCC Other Mr. Frank Irby

Cane 3462

Vecud. 9-28-66

Rec. 10-4-66

1. Strant Cities Service Dil Co's request for a waterflood for their Southeast Maljamas Straybury-San Fudres emit.

2. Dle injection shall be them tubing and under or packer.

3. Location of Digetion wellate he opened are the attacked.

This of the



### STATE OF NEW MEXICO

## STATE ENGINEER OFFICE

S. E. REYNOLDS STATE ENGINEER

September 26, 1966

ADDRESS CORRESPONDENCE TO: STATE CAPITOL SANTA FE, NEW MEXICO 87501

11 1 1 3 3 1 2

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

Dear Mr. Porter:

Reference is made to the application of Cities Service Oil Company which seeks approval of the commission for its Southeast Maljamar Grayburg-San Andres Unit Agreement and for permission to install and operate a water flood within said unit, the unit being comprised of parts of Sections 29, 30 and 32 in T. 17 S., R. 33 E.

It is my understanding, from telephone conversation with Mr. Kellahin, that the Cities Service Ohio State #5 in the SE4 of the NE4 of Sec. 32; the Phillips U. S. Minerals #1 situated in the NW4 of the SE4 of Sec. 30; the Cities Service Ohio Jones proposed in the NW4 of the NE4 of Sec. 30 are to be handled by administrative action in a later phase of the unit operation and that the approval for these three wells for injection service is not a part of the application now before the commission. No diagrammatic sketches were received for these three wells and the above sentence constitutes the sense of Mr. Kellahin's reason for not submitting the sketches.

This office offers no objection to the granting of the application provided the three above mentioned wells are not considered a part of this application, insofar as their use in injection service is concerned.

FEI/ma

cc-Cities Service Oil Co.

Jason Kellahin

F. H. Hennighausen

Yours truly,

S. E. Reynolds State Engineer

By: Frank E. Irby Chief
Water Rights Division

### DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 28, 1966

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 3459: Application of Pennzoil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through eight wells located in Sections 28 and 33, Township 17 South, Range 33 East, Maljamar Pool, Lea County, New Mexico.
- CASE 3460: Application of Penroc Oil Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill and complete a well at an unorthodox location 1,500 feet from the South and East lines of Section 19, Township 21 South, Range 24 East, Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico. Applicant, upon completion of said well in the Upper Pennsylvanian formation, proposes to abandon its Indian Federal Well No. 1, located in Unit G of said Section 19, insofar as the Upper Pennsylvanian formation only is concerned.
- CASE 3461: Application of Cities Service Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Southeast Maljamar Grayburg-San Andres Unit Area comprising 1,080 acres, more or less, of State and Federal lands in Sections 29, 30 and 32, Township 17 South, Range 33 East, Lea County, New Mexico.
- CASE 3462: Application of Cities Service Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Southeast Maljamar Grayburg-San Andres Unit by the injection of water into the Grayburg-San Andres formation through eleven wells located in Sections 29, 30 and 32, Township 17 South, Range 33 East, Lea County, New Mexico.
- CASE 3463: Application of Continental Oil Company for a unit agreement,
  Lea County, New Mexico. Applicant, in the above-styled cause,
  seeks approval of its Reed-Sanderson Unit Area comprising 1041
  acres, more or less, of Federal and fee lands in Township 20
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Page -2-Docket No. 24-66 Examiner Hearing - September 28, 1966

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- Case 3466: Application of Skelly Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Lovington Paddock Unit Area comprising 3325 acres, more or less, of Federal, fee and State lands in Townships 16 and 17 South, Ranges 36 and 37 East, Lea County, New Mexico.
- CASE 3467: Application of Skelly Oil Company for a waterflood project,
  Lea County, New Mexico. Applicant, in the above-styled cause,
  seeks authority to institute a waterflood project in its
  Lovington Paddock Unit by the injection of water into the
  Lovington Glorieta (Paddock) formation through 22 wells located
  in said unit area, Lovington Paddock Pool, Lea County, New
  Mexico.
- CASE 3468: Application of Tenneco Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Grayburg-Jackson West Cooperative Unit Area comprising 2,000 acres, more or less, of State and fee lands in Township 17 South, Range 29 East, Eddy County, New Mexico.
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KELLAHIN AND FOX ATTORNEYS AT LAW 54% EAST SAN FRANCISCO STREET POST OFFICE BOX 1769 SANTA FE, NEW MEXICO 87501

TELEPHONE 982-4315 AREA CODE 505

September 14, 1966

3462

Oil Conservation Commission Box 2088 Santa Fe, New Mexico

Re: Application of Cities Service Oil Co. for approval of the Southeast Maljamar Waterflood Project

Attention: Dan Nutter

Gentlemen:

Enclosed are schematic designs of the injection wells in connection with the above application.

If anything further is needed on this please let me know.

Yours very truly,

Jason to Killahin

Jason W. Kellahin

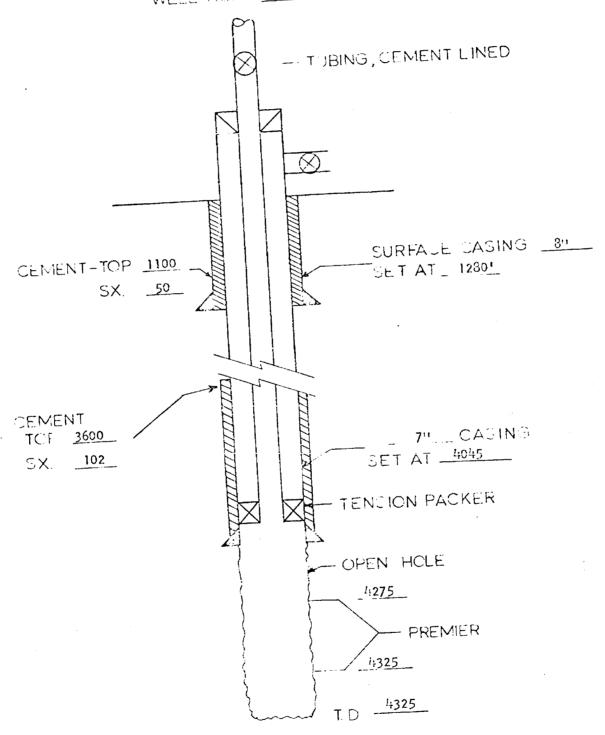
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ROBERT E.FOX

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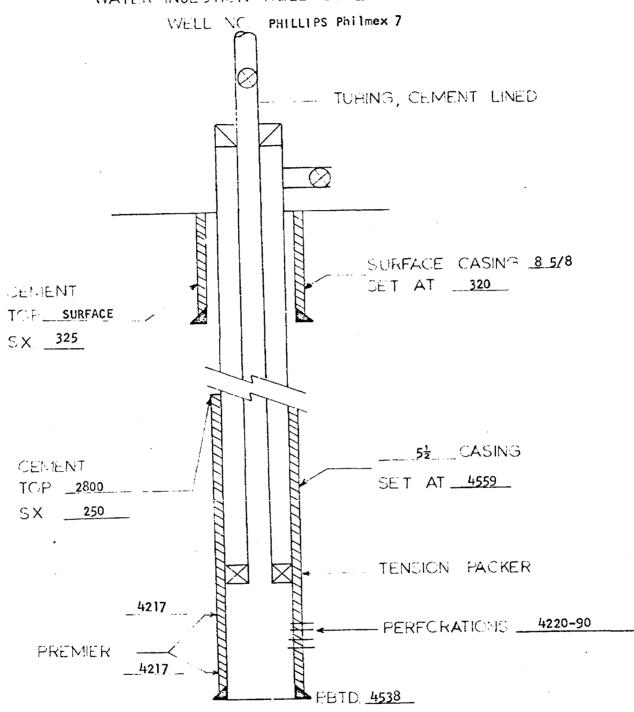
## CITIES SERVICE OIL CO. WATER INJECTION WELL SCHEMATIC

WELL I.C. Cockburn State A #3



SEM. UNIT CITIES SERVICE OIL CO.

WATER INJECTION WELL SCHEMATIC



## SEM UNIT CITIES SERVICE OIL CO. WATER INJECTION WELL SCHEMATIC

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TENDION PACKER

C.S.O. Shell State 2

- TUBING, CEMENT LINED

SURFACE JASING Pulled
SET AT 4060

TENDION PACKER

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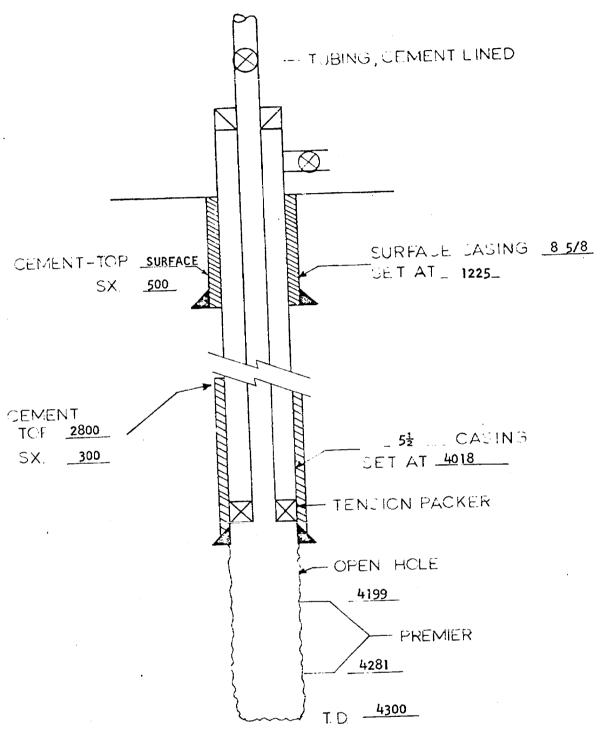
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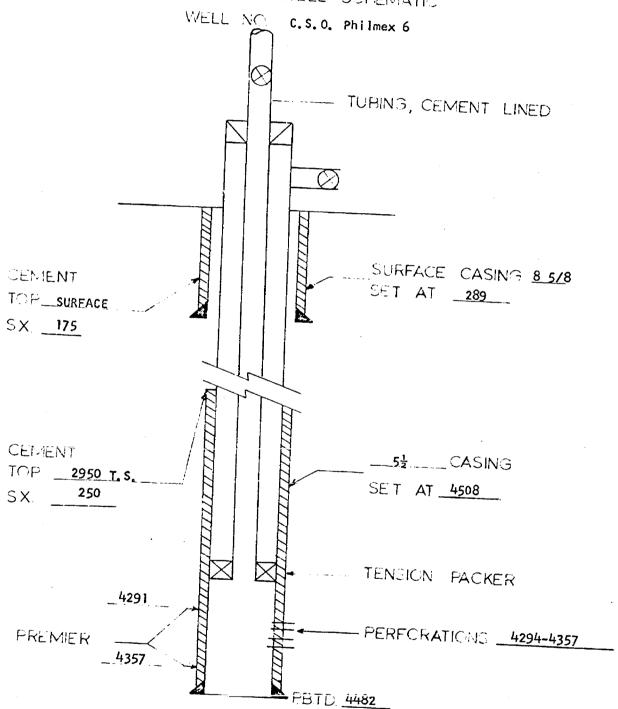
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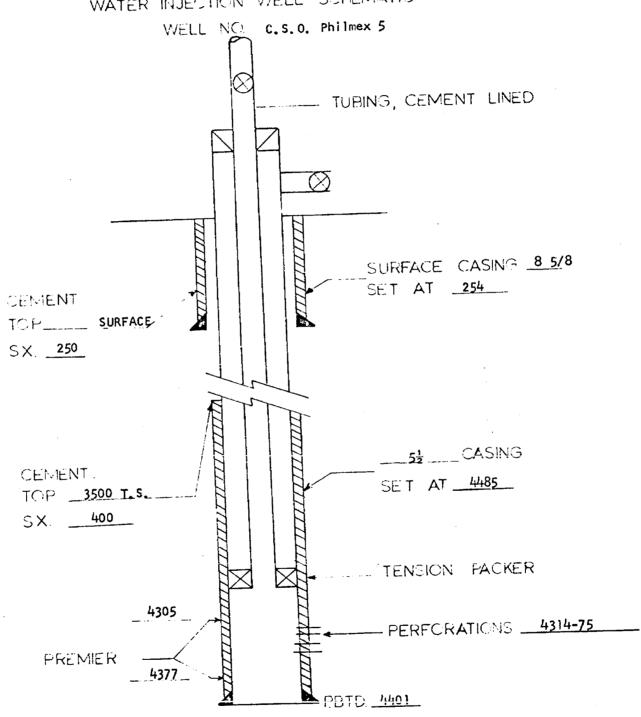


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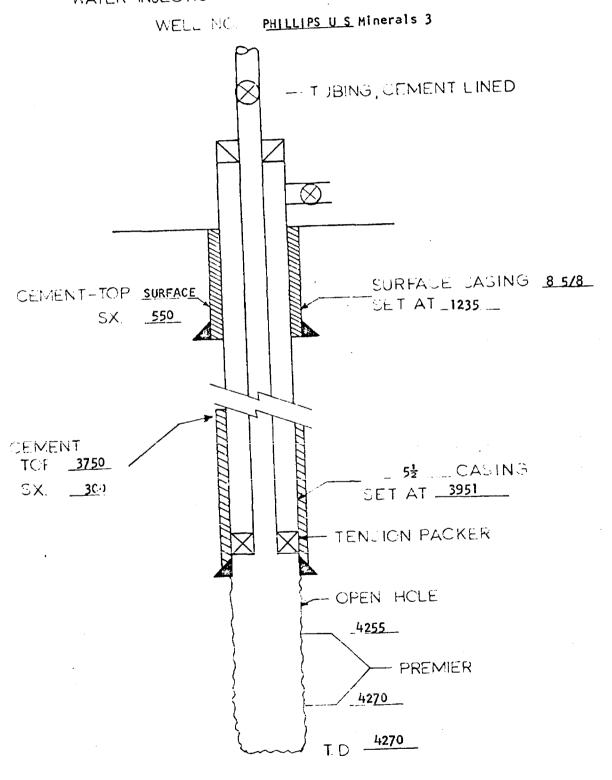
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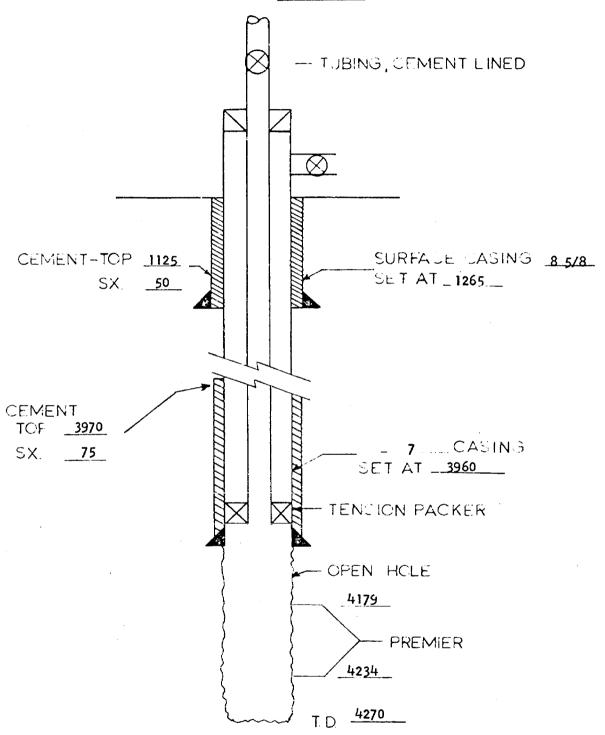


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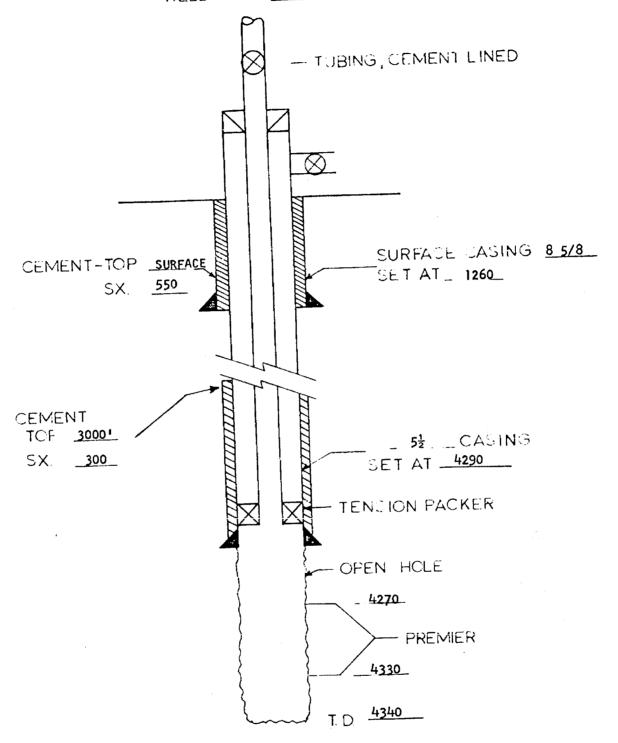


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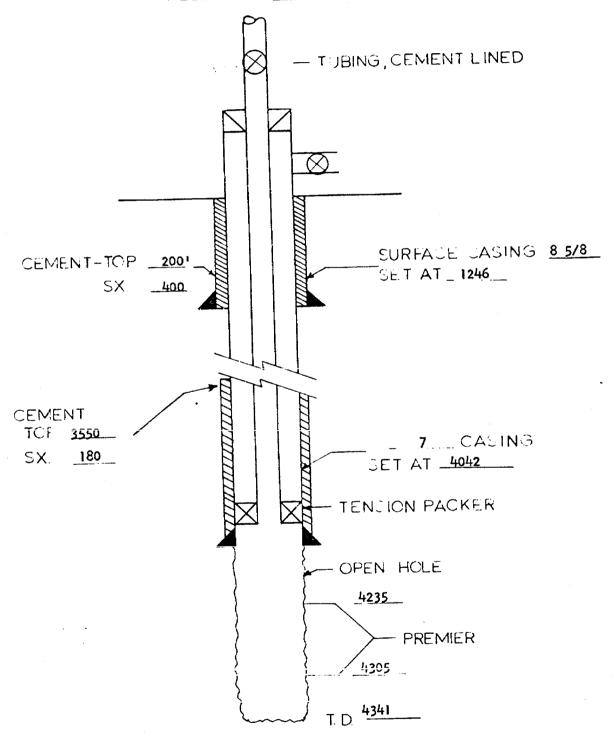


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WELL NO. SHELL'S State A 2



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#### DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 28, 1966

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 3459: Application of Pennzoil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation through eight wells located in Sections 28 and 33, Township 17 South, Range 33 East, Maljamar Pool, Lea County, New Mexico.
- CASE 3460: Application of Penroc Oil Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill and complete a well at an unorthodox location 1,500 feet from the South and East lines of Section 19, Township 21 South, Range 24 East, Indian Basin-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico. Applicant, upon completion of said well in the Upper Pennsylvanian formation, proposes to abandon its Indian Federal Well No. 1, located in Unit G of said Section 19, insofar as the Upper Pennsylvanian formation only is concerned.
- CASE 3461: Application of Cities Service Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of its Southeast Maljamar Grayburg-San Andres Unit Area comprising 1,080 acres, more or less, of State and Federal lands in Sections 29, 30 and 32, Township 17 South, Range 33 East, Lea County, New Mexico.

CASE 3462:

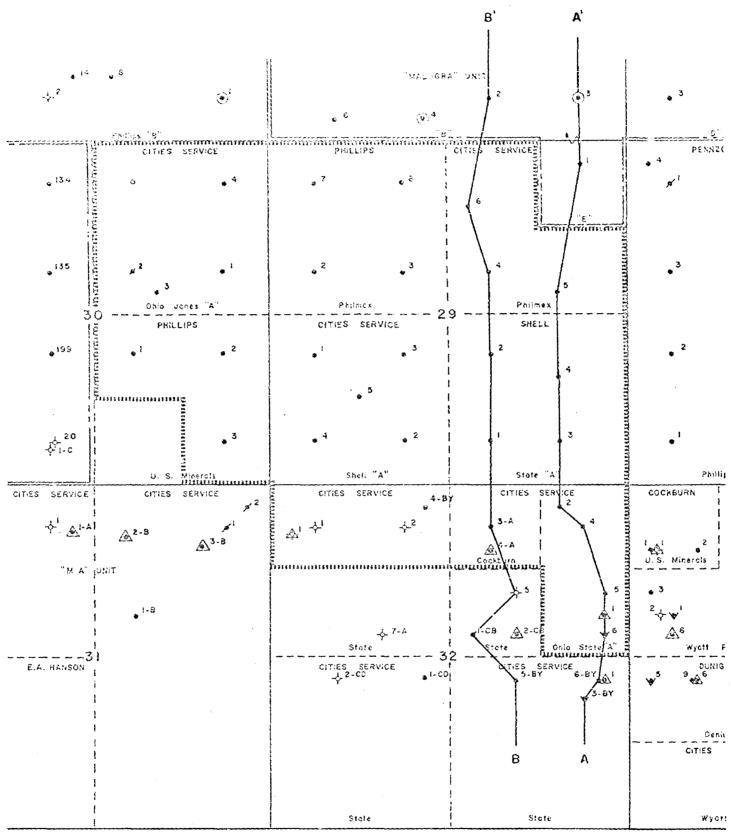
Application of Cities Service Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Southeast Maljamar Grayburg-San Andres Unit by the injection of water into the Grayburg-San Andres formation through eleven wells located in Sections 29, 30 and 32, Township 17 South, Range 33 East, Lea County, New Mexico.

CASE 3463: Application of Continental Oil Company for a unit agreement,
Lea County, New Mexico. Applicant, in the above-styled cause,
seeks approval of its Reed-Sanderson Unit Area comprising 1041
acres, more or less, of Federal and fee lands in Township 20
South, Range 36 East, Lea County, New Mexico.

Page -2-Docket No. 24-66 Examiner Hearing - September 28, 1966

- CASE 3464: Application of Continental Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Queen formation through 13 wells located in Sections 3, 4, 9, and 10, Township 20 South, Range 36 East, Eumont Pool, Lea County, New Mexico.
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Cities Service Oil Company

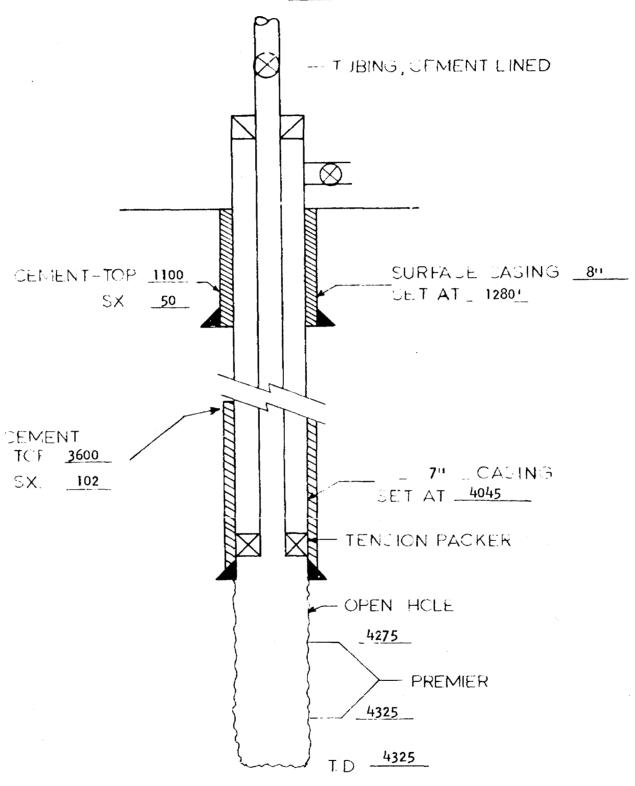
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S. E. M. WATERFLOOD AREA
MALJAMAR POOL, LEA COUNTY, NEW MEXICO
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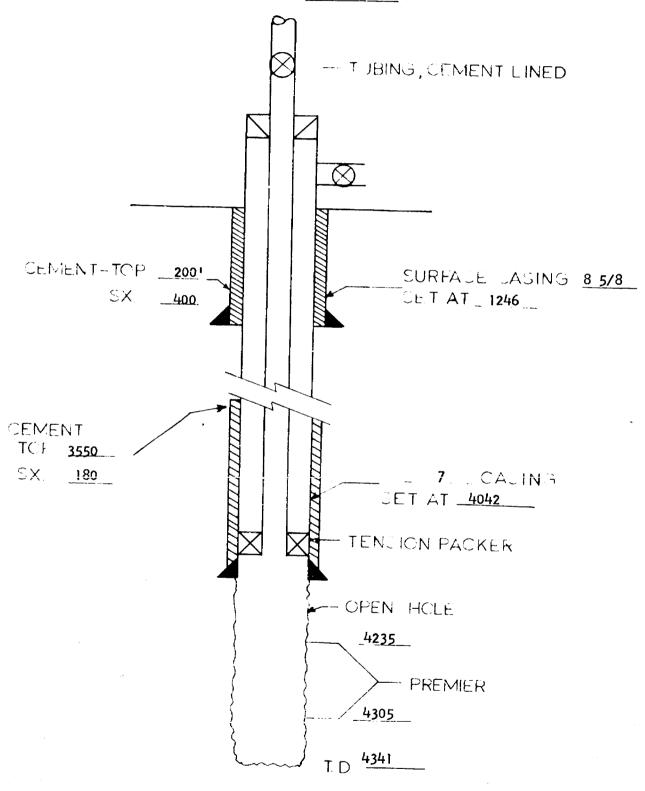
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WELL MC Cockburn State A #3



WELL MC SHELL'S State A 2



SEM UNIT
CITIES SERVICE OIL CO.
WATER INJECTION WELL SCHEMATIC

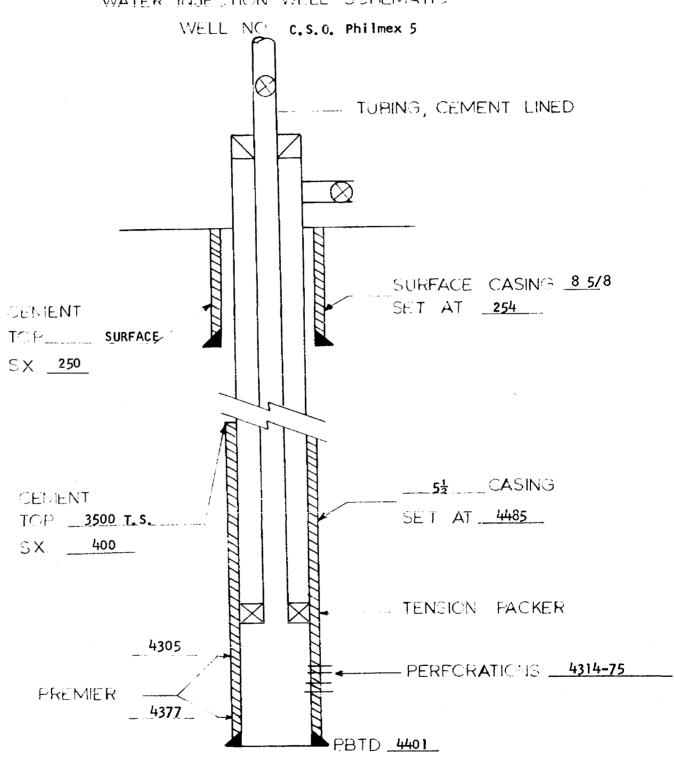
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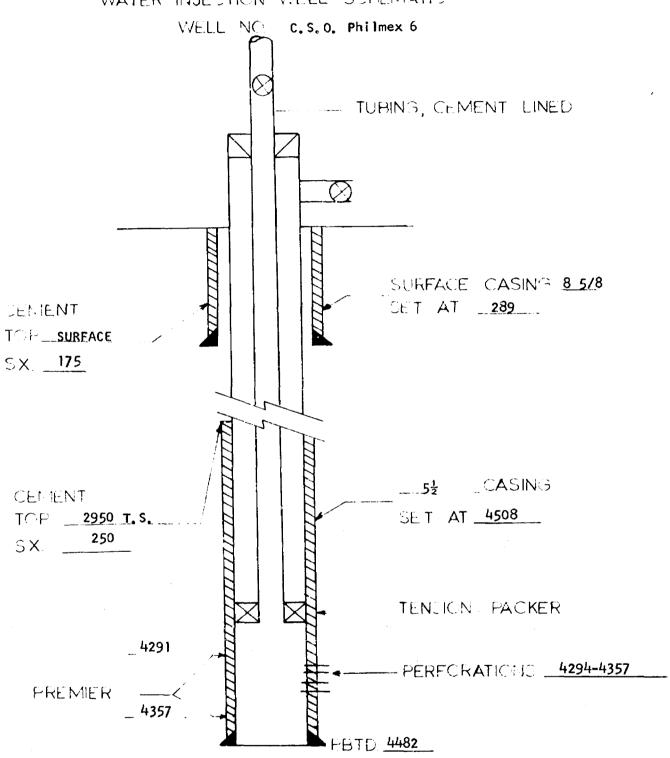
#### S.E.M. UNIT CITIES SERVICE OIL CO.

WATER INJECTION WELL SCHEMATIC

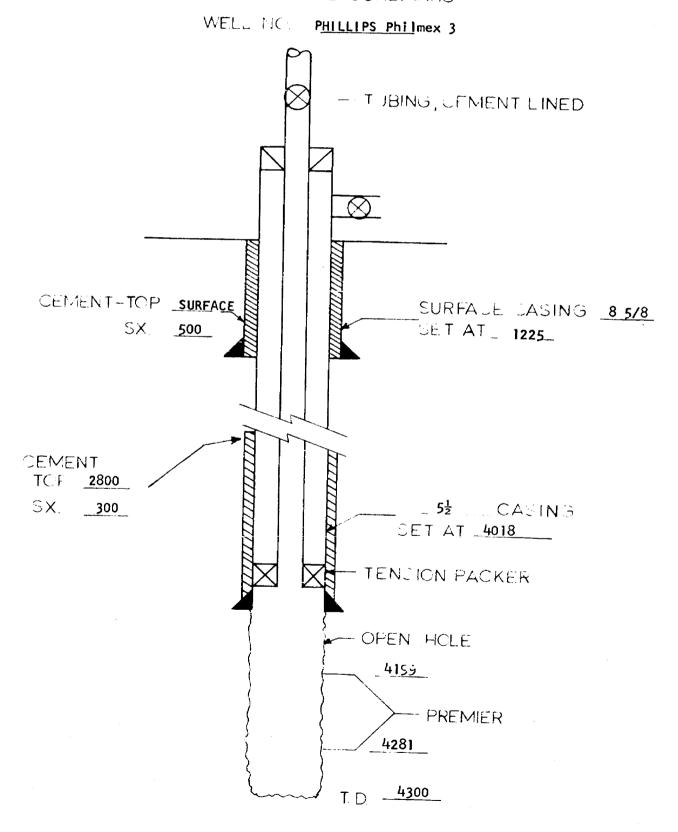


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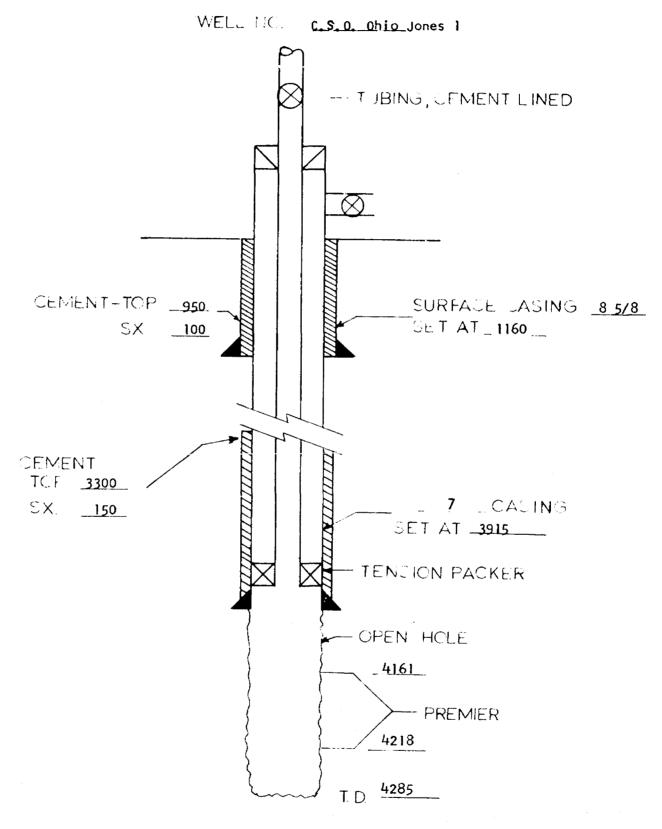
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#### SEM UNIT CITIES SERVICE OIL CO.

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CITIES SERVICE OIL CO.
WATER INJECTION WELL SCHEMATIC



WELL NO. c.s.o. Shell State 2 - TURING, CEMENT LINED  $\otimes$ SURFAUL LASING Pulled CEMENT-TOP \_-SET AT\_ -\_\_ SX CEMENT TCF <u>3260</u> \_ 7 \_ CASING SX. **200** SET AT \_\_4060\_\_\_ TENCION PACKER - OPEN HCLE 4253 - PREMIER 4305 T.D. 4325

BEFORE THE

#### CIL CONSERVATION COMMISSION

OF NEW MEKICO

Care 3462

IN THE MATTER OF THE APPLICATION OF CITIES SERVICE OIL COMPANY FOR APPROVAL OF THE SOUTHEAST MALJAMAR GRAYBURG-SAN ANDRES UNIT AGREEMENT EMBRACING 1030 ACRES, MORE OR LESS, LOCATED IN SECTIONS 29, 30 and 32, TOWNSHIP 17 SOUTH, RANGE 33 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO, AND FOR PERMISSION TO INSTITUTE AND OPERATE A WATERFLOOD WITHIN SAID UNIT AREA

#### APPLICATION

Comes now Cities Service Oil Company and applies to the Oil Conservation Commission of New Mexico for approval of its Southeast Maljamar Grayburg-San Andres Unit Agreement embracing 1080 acres, more or less, described as:

#### TOWNSHIP 17 SOUTH, RANGE 33 EAST, N.M.P.M.

Section 29 - W<sub>2</sub>, SE<sub>4</sub>, W<sub>3</sub>NE<sub>4</sub>, SE<sub>4</sub>NE<sub>4</sub> Section 30 - NE<sub>4</sub>, N<sub>2</sub>SE<sub>4</sub>, SE<sub>4</sub>SE<sub>4</sub> Section 32 - N<sub>2</sub>N<sub>2</sub>, SE<sub>4</sub>NE<sub>4</sub>

and for permission to install and operate a waterflood within said unit pursuant to the provisions of Rule 701, of the Rules and Regulations of the New Mexico Oil Conservation Commission, and in support thereof would show the Commission:

- 1. That designation of the Unit Area and preliminary approval of the Unit Agreement has been given by the U. S. Geological Survey, and a copy thereof submitted to the Commissioner of Public Lands of the State of New Mexico, through the Unit Division of the New Mexico State Land Office.
  - 2. That there is attached hereto the following exhibits:
  - (a) Plat of the area showing the proposed unit together with all wells located within two miles of the Unit boundary.
  - (b) Plat of Unit showing all proposed injection wells.
  - (c) Log of the Shell State A-2 well, proposed as the initial injection well.

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- 3. Production in the Unit Area is at an advanced stage of depletion and recovery by primary methods is at or near the economic limit, and engineering investigations indicate water-flooding of the unit area will be physically and economically feasible.
- 4. The formation to be unitized and waterflooded is the Premier sand found from a depth of 4150 feet to 4350 feet. Injection rate will be approximately 250 barrels of water per well per day on a 5-spot pattern established by offsetting waterfloods being operated by Pennzoil and Sunset International. Fresh water will be purchased from the Continental Oil Company-operated MCA unit. Injection wells will be equipped with corrosive resistant, lined tubing and packers. It is anticipated that lines will be run in some of the injection wells to isolate the Premier sand.
- 5. The waterflood will be installed and operated in conformance with Commission Rule 701E.
- 6. Diagramatic sketches of injection wells will be furnished to the Commission and to the New Mexico State Engineer prior to date of the hearing.
- 7. By copy of this application, with exhibits attached, notice is hereby given to the New Mexico State Engineer, as required by the Rules and Regulations of the Commission.
- 8. The proposed unitization and secondary recovery project will result in the recovery of hydrocarbons which would not otherwise be recovered, and will thereby prevent waste and protect the correlative rights of the owners in the unit.

WHEREFORE, Applicant respectfully requests that this application be set for hearing before the Commission's duly

appointed examiner and that after notice and hearing, the Commission enter its orders approving the applicant's Southeast Maljamar Grayburg-San Andres Unit and granting permission to install and operate a wtaerflood within the Unit Area.

Respectfully submitted,
CITIES SERVICE OIL COMPANY

BY: Joson W. Kellah

Post Office Box 1769 Santa Fe, New Mexico

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