CASE 3920; Application of KERN COUNTY LAND COMPANY FOR SALT WATER DISPOSAL, ROOSEVELT COUNTY.

12.

Case Number 3920 Application Trascripts Small Exhibits ETC.



MR. UTZ: We will consolidate Cases 3920, 3921 and 3922 for purposes of testimony. Separate Orders will be written on the Cases.

MR. HATCH: Case 3920: Application of Kern County Land Company for salt water disposal, Roosevelt County, New Mexico.

Case 3921: Application of Kern County Land Company for salt water disposal, Roosevelt County, New Mexico.

Case 3922: Application of Tenneco Oil Company for salt water disposal, Roosevelt County, New Mexico.

MR. UTZ: Are there any appearances in these three cases?

MR. KELLY: Booker Kelly on behalf of Tenneco Oil Company and Kern County Land Company. Kern County is solidly owned by Tenneco, but for their own internal purposes the lands are still in the name of Kern County Land Company. The witness will testify on behalf of both organizations.

(Witness sworn.)

(Applicants' Exhibits 1 through 8 marked for identification.)

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

DIRECT EXAMINATION

BY MR. KELLY:

Would you state your name, position and employer, Q please?

1 am Louis Williams, a Petroleum Engineer employed А by Tenneco Oil Company in Midland.

And have you previously qualified as a Petroleum Q Engineer before this Commission?

No. А

Would you give the Examiner a brief resume Q

of your professional and educational experiences? I have a Bachelor of Science Degree in Petroleum

A Engineering from Texas Tech, and have been employed since that time by Union Oil Company of California and Tenneco as a Petroleum Engineer, working in the West Texas-New Mexico and South Los Angeles Areas.

Are you familiar with the field involved in these Q

three hearings?

Yes. А

MR. KELLY: Are the witness's qualifications

acceptable?

MR. UTZ: Yes, sir, they are.

(By Mr. Kelly) Now, referring to what has been Q

marked Exhibit No. 1 which is a plat of the area on which the three subject wells are located, would you, for the Examiner, locate the three wells and give their present status?

4

A The first well, Kern County Land Company's Federal 23 No. 11, located in Section 23, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County. The well I just mentioned is currently producing approximately 10 barrels of oil and one barrel of water per day.

The second well of interest is Kern County Land Company's Federal 21 Well No. 3, located in Section 21, Township 7 South, Range 33 East, Roosevelt County, is a producing oil well, producing about 35 barrels of oil and no water per day.

The third well of interest is Tenneco Oil Company's State "V" Well No. 3, located in Section 30, Township 7 South, Range 34 East, Roosevelt County, currently producing 17 barrels of oil and 20 barrels of water, approximately.

Q These wells, especially the last two, still have fairly substantial oil production. Did Tenneco and Kern County have any other wells that they could have used or are these about the three worst wells that you had in the area?

A These wells, there are other wells located on our

properties which make less oil than the ones chosen; however, these wells were chosen because in addition to disposing of our salt water produced in this field, we hope to gain useful data and knowledge concerning secondary recovery waterflood type operations. These wells will lend themselves to gathering of that data more readily than some others which produce less oil.

Q Is your salt water disposal plan here in conjunction with any other operator in this field?

A Yes, we're in the process now of negotiating an agreement with Pan American Petroleum Corporation to jointly dispose of water in each others' wells where it is geographically more convenient and more economical to do so.

Q As a matter of fact, what well will be first used for injection purposes?

A The well that we plan to convert and utilize first will be Kern County Land Company's Federal 23 No. 11, located in Section 23.

Q That's the one with the lowest oil production? A Yes.

• Is oil production from all three of these wells declining?

A Yes, it is, very rapidly.

Q Now, on Exhibit No. 2, I believe you have calculated the water analysis for this water. What is the type of water that will be injected?

A It's an extremely salty water, not fit for human or domestic uses.

Q Where is this water being produced from?

A The San Andres formation.

Q So you are just going to be putting the water back in the zone it's been produced from, is that it?

A Yes.

MR. UTZ: Mr. Kelly, let me ask a question at

this point.

MR. KELLY: Yes, sir.

MR. UTZ: It is my understanding that these wells are going to be used not only for salt water disposal, but to evaluate waterflood possibilities?

THE WITNESS: Well, their primary function, of course, will be as disposal wells, but through disposal of water into these wells, we hope to gain data and information which would establish the feasibility of waterflooding.

MR. UTZ: But you are not at this time asking for a pilot waterflood?

THE WITNESS: No, we are not.

Q (By Mr. Kelly) This application is strictly for salt water disposal?

A For salt water disposal.

Q You are looking down the road as to possible secondary benefits?

A Yes, trying to make the wells serve two purposes.

Q Now, turning to what has been marked Exhibit No. 3, this is your sketch, that's Kern County Land Company Well Federal 23 No. 11?

A Yes, Federal 23, No. 11.

Q Which well is that on the plat?

A That's the well in the center of the plat with the red arrow.

Q Could you describe the installation that is proposed?

A This installation consists of 7-inch surface pipe, set at 1817 feet with cement circulated to the surface, the volume 375 sacks was used. Then the oil string is 4 and 1/2-inch casing set at 4300 feet, cemented with 350 sacks which by calculation the top of that cement should be at about 2500 feet. Then injection will be down 2 and 7/8ths-inch tubing internally plastic-coated set on a hookwall retreivable Baker Model packer at about 4300 feet. The annulus of this

well between the tubing and the casing will be filled with a treated inhibited inert type packer fluid and pressure gauge will be maintained at the surface on this annulus.

Q Now, Exhibits 4 and 5 are the sketches for the other two proposed injection wells?

A Yes.

Q The casing is the same for all three?

A Yes.

Q You will have cement circulated to the surface in all cases?

A Yes.

Q Do you feel this will protect any possible fresh water in the area?

A Yes, I do.

Q Do you feel it will protect any other possible oil producing zones?

A Yes.

Q What is the anticipated volume of water that you will be injecting into these wells?

A 200 barrels per day or less. The water production along with the oil production in this field is declining rapidly. We anticipate the water that we have to dispose of

to fall off.

Q Do you expect that you will be injecting under pressure?

A That's a distinct possibility that we'll have to inject under pressure.

Q What would that be?

A That should be a thousand pounds or less.

Q Do you anticipate that any of the wells will have any trouble taking that volume of water under pressure?

A Oh, no.

Q I believe that you have received a copy of a letter from Kermit Oil Company stating some objection to one of the proposed injection wells, is that correct?

A That's correct.

Q Which well is it?

A Kermit Oil Company has a well, their State No. 1 located in the northeast quarter of Section 25, it's a diagonal offset to Tenneco's State "V" 3, Northwest diagonal offset. We did receive a letter from those people objecting to the injection of water into the San Andres, this, of course, is the same zone that they're producing oil from. Q Do you have any opinion as to whether the injection of water in the volumes you have testified to would have any

In my opinion the small volumes of water which will adverse effect on that well? be injected into this well will probably not affect them at all, and if it does, it would more than likely be a beneficial effect as I would expect an oil bank to be built as a result of this injection and that oil bank, of course, is going to be pushed at least partially toward their well. In your opinion, would the granting of this appli-

cation have any adverse effect on correlative rights of any operators, offset operators, in the three wells?

You have marked Exhibits 6, 7 and 8 which are the No. Α logs of the three wells in the order in which the cases were

called, is that right? Were Exhibits 1 through 8 prepared by you or under That is correct. A

Q your supervision? MR. KELLY: We move the introduction of Exhibits Yes, they were. Α

MR. UTZ: Without objection, Exhibits 1 through 8 1 through 8. will be entered into the record of this case. (Whereupon, Applicants' Exhibits 1 through 8 offered and admitted

in evidence.)

MR. KELLY: We have no further testimony on direct, Mr. Examiner.

CROSS EXAMINATION

BY MR. UTZ:

Q What were the volumes of water, again, for each of these wells, that you anticipated to go in?

A We would anticipate a volume of 200 barrels per day or less.

Q For each well?

A Yes, the reason is we are not sure of the exact volume because we are not sure exactly what agreement we're going to come to with Pan American and how much water from what wells will ultimately wind up at any given injection well, if you follow me.

Q It says on the order that the volumes that are ordinarily injected in water injection wells for waterflood pruposes, is that right, usually starts at 300 barrels a day, so that is a sizeable amount of water, it would seem to me, to be put in the San Andres. Are there any waterfloods in this area here that you know of?

A No, sir.

Q This injection zone particularly on your, is that the 30-3 well, is that your third well --

It's 3 "V". А

3 "V"? Q

Or "V" 3, actually. A

Is the injection zone in that well, the "V" 3, Q identical to the production zone of the Kermit Well?

Yes, we're injecting into a long interval, we are Α producing from a long interval in this well, 3 "V". The interval that Kermit is producing from in their well is part of that interval.

This plat is a little vague, is that a producing well offset to the north of your lease, or do you have a Q producing well offset to the north?

Yes, sir, we have 3 wells on that tract, one, two and three, and No. 2 is the offset to the north of the No. 3 although it's hard to see on this plat.

Pan American has an offset from the same zone to the Q

west?

Yes. А And Skelly to the east? Q

Yes, to the east. Α

Yes. Q

Yes, that's true. А

Would it be reasonable to assume that water

Q

production would show up in any of these four wells that I have just mentioned, particularly the three offsets before it would show up in the Kermit well, that is if you were

flooding out the formation? Normally, one would expect it to show up in

either the north or the east offset before it showed up in the Kermit well. However, if directional permeability or something of that nature existed, it's possible that it would

show up in the Kermit well first.

If the Kermit well should get some response, it could certainly be noticed by an increase in production,

would that be true?

Yes, sir. And if that did happen, and they still objected А to an increase in production, then something could be done about your injection at that time, could it not?

MR. UTZ: Are there any other questions of the Yes. А

witness?

MR. KELLY: Nothing further.

MR. UTZ: One thing I did want to take up. Is the cementing program on each of these three wells virtually the same as the schematic that you showed on the 23 - 11?

A Yes, sir, they are all basically the same. They

differ in detail, but --

O They're all plastic-coated tubing under a packer, annulus filled with inert fluid, gauge at the surface?

A Yes, sir.

Q And cement on the production string comes up to

approximately 2500 feet?

A Yes, sir.

MR. UTZ: The witness may be excused.

(Witness excused.)

MR. UTZ: Any statements? The case will be taken

under advisement.

GOVERNOR DAVID F. CARGO CHAIRMAN

State of New Mexico Gil Conservation Commission

LAND COMMISSIONER GUYTON B. HAYS MEMBER



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

P. O, BOX 2088 Santa Fe

November 19, 1968

Mr. Booker Kelly White, Gilbert, Koch & Kelly Attorneys at Law Post Office Box 787 Santa Fe, New Mexico

	3920 3921						
	3922						
Re:	Case No	_					
	Order No. <u>R-3575</u>						
	Applicant: 3576						
	Kern County 3577						
	Tenneco						

Dear Sir:

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

Very truly yours,

(Jun)

A. L. PORTER, Jr. Secretary-Director

ALP/ir

Carbon copy of drder also sent to:

Hobbs OCC × Artesia OCC Aztec OCC

Other State Engineer Office

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 FURPOSE OF CONSIDERING:

> CASE No. 3920 Order No. R-3575

APPLICATION OF KERN COUNTY LAND COMPANY FOR SALT WATER DISPOSAL, ROOSEVELT COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 7, 1968, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this <u>19th</u> day of November, 1968, 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, Kern County Land Company, is the owner and operator of the Federal 23 Well No. 11, located in Unit F of Section 23, Township 7 South, Range 33 East, NMPM, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

(3) That the applicant proposes to utilize said well to inject produced salt water into the San Andres formation, with injection into the perforated interval from approximately 4158 feet to 4233 feet.

(4) That the subject well should be classified as a pressure maintenance project injection well.

(5) That the subject pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(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 Fules and Regulations.

-2-CASE No. 3920 Order No. R-3575

IT IS THEREFORE ORDERED:

(1) That the applicant, Kern County Land Company, is hereby authorized to institute a pressure maintenance project in the Chaveroo-San Andres Pool, Roosevelt County, New Mexico, by the injection of water into the San Andres formation through its Federal 23 Well No. 11, located in Unit F of Section 23, Township 7 South, Range 33 East, NMPM, Roosevelt County, New Mexico.

(2) That said injection should be accomplished through
2 7/3-inch tubing installed in a packer set at approximately
4300 feet, and into the perforated interval from approximately
4158 feet to 4233 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus in order to determine leakage in the tubing, casing, or packer.

(3) That the subject pressure maintenance project is hereby designated the Kern County Federal 23 Pressure Maintenance Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

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

(5) 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 CARGO, DAVID **eilai**rman GUYTON B. HAY Medher

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

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EXHIBIT A

FORMATION WATER ANALYSIS Milligrams per Liter

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Na	
	66,600
	27,680
Mg	4,860
S04	200
01	200
C1 (165,600
HCO3	
<u> </u>	nil
C03	<u>nil</u>
Total Solids	264,940
Iron	None
S pecific Gravity @ 60 ⁰ F	1.174
Hydrogen Sulfide, H ₂ S	Present

BEFORE EXAMINER UTZ CIL CONSERVATION COMMISSION youl. CASE NO. 3920 3 2 39.21 3

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CORRECTION GRAMS/CC.





TENNECO OIL COMPANY · P. O. BOX 1031 · 1800 WILCO BUILDING · MIDLAND, TEXAS 79701

October 21, 1968

Cons 3920

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

ATTENTION: Mr. D. S. Nutter

RE: Salt Water Disposal Applications Chaveroo Field, Roosevelt County, New Mexico.

Gentlemen:

Attached are two applications to convert producing Kern County Land Company wells to salt water disposal. They are the Federal "23" Well No.11 and the Federal "21" Well No. 3. All the necessary supporting data required by Rule 701-B is attached.

We request that these two applications be scheduled for hearing on November 7, 1968, as we did by telephone on Friday, October 18, 1968, to Mr. D. S. Nutter.

Very truly yours,

TENNECO OIL COMPANY J. McDónald District Superintendent

53 bC7 23

DOCKET MAILED

Date 10-25-68

1.1.1

LMW:cw

cc: Department of Interior

New Mexico State Engineer - State Capitol Building, Santa Fe, New Mexico All Offset Operators

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APPLICATION		P. 0. Box 103		Roosevelt	
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HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWHER			Yes	
HAVE COPIES OF THIS APPLICATION	Yes - USGS	1	Yes	w knowledge and belief.	o.c0
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	T PLAT OF AND	i and c	complete to the best of t	October 21, 1	968
THIS APPLICATION (SEE RULE 70	Yes	tion above is true and	Engineer	(Date)	
ARE THE FOLLATION (SEE NOUSAND) I hereby certi M. M. (Signature) NOTE: Should waivers from th not accompany this ap	iy that the	Product	(Title)	ny knowledge and belief. October 21, 1 (Date) one-half mile of the proposed in hold the application for a peri 15-day waiting period no protes ceived, the application will be s	od of 15 days
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J. M. (Signature)		the surface owner, an	ation Commission with	15-day waiting period will be s	et for neutro
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GMH/esr 11-14-68

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:

prox

CASE No. 3920 Order No. R-3575

APPLICATION OF KERN COUNTY LAND COMPANY FOR SALT WATER DISPOSAL, ROOSEVELT COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 7, 1968, at Santa Fe, New Mexico, before Examiner Elvis A. Utz

NOW, on this _____ day of <u>November</u>, 196<u>8</u>, the Commission, a guorum 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, Kern County Land Company, is the owner and operator of the Federal 23 Well No. 11, located in Unit F of Section 23, Township 7 South, Range 33 East, NMPM, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

(3) That the applicant proposes to utilize said well to injust
dispose of produced salt water into the San Andres formation,
with injection into the perforated interval from approximately
4158 feet to 4233 feet.

(4) That the subject well should be classified as a pressure maintenance project injection well.

-2-CASE No. 3920

(5) That the subject pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(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, Kern County Land Company, is hereby authorized to institute a pressure maintenance project in the Chaveroo-San Andres Pool, Roosevelt County, New Mexico, by the injection of water into the San Andres formation through its Federal 23 Well No. 11, located in Unit F of Section 23, Township 7 South, Range 33 East, NMPM, Roosevelt County, New Mexico.

(2) That said injection should be accomplished through $2\frac{1/8}{2}$ -inch tubing installed in a packer set at approximately 4300 feet, and into the perforated interval from approximately 4158 feet to 4233 feet;

<u>PROVIDED HOWEVER</u>, that the tubing shall plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus in order to determine leakage in the tubing, casing, or packer.

(3) That the subject pressure maintenance project is hereby designated the <u>Kern County Federal 20</u> Pressure Maintenance Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(4) That monthly progress reports of the pressure maintenance 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. 3920

(5) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem neces-

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

Kern County hand Co. dispore Romanduced Andrey Salt when the San Andrey form in the perf int Brown 4158 to 4233 in its Federal 23 used no 11 loc mint F See 23, T75 R33E Roomalt Co.n. mep. 1980 FNL



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