CASE 3870: Application of D. W. ST. CLAIR FOR SALT WATER DIS-POSAL, LEA COUNTY, NEW MEXICO.

- <u>19</u>-25



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ase umber Application Transcripts. Small Exhibits

GOVERNOR DAVID F. CARGO CHAIRMAN

	State of Flein	Alexico
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SANTA FE

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

LAND COMMISSIONER GUYTON B. HAYS MEMBER

October 2, 1968

Mr. D. W. St. Clair 501 First National Bank Building Midland, Texas 79701

Re:	Case io	3870	
	Order No.	R-3515	
*	Applicant:		
	D. W. St.	Clair	

Dear Sir:

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

Very truly yours,

A. L. PORTER, Jr.

Secretary-Director

ALP/ir

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Carbon copy of drder also sent to:

Hobbs OCC X

Artesia OCC

Aztec OCC

Other Mr. Harold Berends - Bureau of Land Management Post Office Box 1449 - 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 CONSIDERINGS

> CASE No. 3870 Order No. R+3515

APPLICATION OF D. W. St. CONR FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

OPDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 25, 1968, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 2nd day of October, 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,

FUDS: Secon

(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, D. 7. St. Clair, is the owner and operator of the Superior-Federal Well No. 7, located in Unit G of Section 25, Township 19 South, Range 34 Bast, NMPM, Pearl-Queen Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilies said well to dispose of produced salt water into the Queen formation, with injection into the perforated interval from approximately 4941 feet to 5060 feet.

(4) That the injection should be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 4900 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be

CASE No. 3875 Order No. 1-3515

attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, D. W. St. Clair, is hereby authorized utilize his Superior-Federal Well No. 7, located in Unit G of Section 25, Township 19 South, Range 34 East, NUPM, Pearl-Queen Porl. Lea County, New Mexico, to dispose of produced salt water into the Queen formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 4900 feet, with injection into the perforated interval from approximately 4941 feet to 5060 feet;

PROVIDE) HOWEVER, that the casing-tubing annulus shall be filled with an inert fluid, and that a pressure gauge shall be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of his disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) 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 CIL CONSTRVATION COMMISSION 11 24 632 DAVID F CARGO, Chairman Memb Jr., Member & Secretary

D. W. ST. CLAIR CONSULTANT - OIL PRODUCER 501 FIRST NATIONAL BANK BUILDING MIDLAND, TEXAS 79701 August 29, 1968

TELEPHONE MUTUAL 2-1828

Care 3870

New Mexico Oil Conversation Commission P. O. Box 1980 Hobbs, New Mexico

Attention: Mr. J. D. Ramey

Subject: Application for Salt Water Disposal Well D. W. St. Clair Superior-Federal Lease (NM 086) Sec. 25, T-19-S, R-34-E, Lea County, New Mexico

Gentlemen:

We attach quadruplicate copies of Forms 9-331 (Federal) and C-108 (State) covering request and information required on converting our No. 7 well on above captioned lease to a salt water disposal well.

We believe all required supplementary information to included, but if anything further is needed please advise us immediately.

We note that Gase No. 3797, Docket 19-68 covered application and ultimate approval of Ernest A. Hanson for similar disposal into the Queen formation in a well approximately 2 miles SW of our well. With the precedent established may we assume that administrative approval can be granted?

Very truly yours,

D. W. ST. CLAIR

Zenne Van Husen George Van Husen

GVH:db

1858 SEP 6 ANO 37

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Page 3 Soptember 25, 1968, Examiner Hearing

Docket No. 28-69

CASE 3870: Application of D. W. St. Clair for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Queen formation in the perforated interval from approximately 4941 feet to 5060 feet in his Superior-Federal Well No. 7 located in Unit G of Section 25, Township 19 South, Range 34 East, Pearl-Queen Pool, Lea County, New Mexico.

CASE 3871: Application of Stoltz and Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling ill mineral interests in the North Bagley Upper, Middle, and Lower Pennsylvanian Pools underlying the E/2 SE/4 of Section 32, Township 11 South, Range 33 East, Lea County, New Mexico. NEW MEXICO OIL CONSERVATION COMMISSION

Form C-108 Revised 1-1-65

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NOTE: Should waivers from the Sirte Engineer, the surface owner, and all operators within one-half mile of the proposed injection well. not accompany this application, the New Mexico Gil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701. BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION Santa Fe, New Mexico September 25, 1968



BEFORE: Daniel S. Nutter, Examiner

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TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order, please. The next case will be Case 3870.

MR. HATCH: Case 3870, application of D.W. St. Clair for salt water disposal, Lea County, New Mexico.

MR. NUTTER: Do you have an attorney, Mr. St. Clair?

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MR. ST. CLAIR: No, I don't.

MR. NUTTER: Are you ready to go?

MR. ST. CLAIR: Yes, I am.

MR. NUTTER: Will you stand and be sworn, please. (Witness sworn.)

D. W. ST. CLAIR

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

DIRECT EXAMINATION

BY MR. NUTTER:

Would you state your name, please, sir? Q

D.W. St. Clair. A

And you are the applicant in this case, Mr. St. Clair? Q Yes.

Ά

And you will be representing yourself? Q

Right. A

Would you proceed with your case, please? Q

We propose to convert the No. 7 Superior-Federal Well, Α

Unit G, Section 25, 19 South, 34 East, Pearl-Queen Field from a marginal producer to a salt water disposal well. Disposal will be in perforations from 4941 to 5,060 under a tension packer about 4900 feet.

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In approximately the last 30 days, this well has, for all practical purposes, ceased making any fluid, either oil or water, and this is purely an economic thing. We consider that in the very near future, we'll probably be making some kind of arrangements for secondary recovery in the area by injecting water into the producing zone and we feel that this is an intermediate step before the water flooding actually takes place.

Q There are waterflood operations currently being conducted in the Pearl-Queen Pool, are there not?

A Approximately three-quarters of a mile to the east and southeast.

Q And the acreage that you operate is on the extreme west end of the field, as I recall, Mr. St. Clair.

A There is another unit, the Mescalero Unit of E.A. Hanson to the west of us, but we are in the north and northwest of the limits.

Q And this well that you propose to inject water into would be on a pattern of water injection wells when and if you get your waterflood started?

jį.

A Yes, it is actually an edge well, as far as our development is concerned.

Q Do you have a plat of the area?

A Yes.

Q I presume that is the same one that has been entered here with the application?

A Yes, that's the one that we have furnished, yes.

MR. NUTTER: Let's have these identified as exhibits and then this plat would be Exhibit Number 1.

> (Whereupon, Applicant's Exhibits 1, 2, 3, and 4 were marked for identification.)

Q Now, Mr. St. Clair, this exhibit that has been

identified as Exhibit Number 1 in the case is a plat of the Pearl-Queen Pool and I note that one section here has been colored in yellow. Is that your lease that is colored in yellow there?

A That is our Superior-Federal lease.

Q So you control all of that Section 25, except 40 acres, apparently, which belongs to Tenneco?

A Yes.

Q And the well that is identified in red is the well that you propose to inject water into? A That is right, No. 7.

Q So it is on the limits of production insofar as that arm of the pool is concerned, the west Pearl-Queen Pool? A Yes.

5

It is the easternmost well in that section?

A Yes.

Q

Q Now, Exhibit Number 2 has been marked as the log and there are some arrows indicated at 4778, 4789, 4821, 4833, 4941, 5010, 5017 and 5060. What do those arrows represent? A Those represent jet perforations.

Q This is the perforated interval, then, of Superior-Federal Well No. 7?

A Yes.

Q And that is the zone into which you will be injecting water?

A The upper four perforations have been squeezed.

Q I see.

And we will be injecting into the 1, 2, 3, 4 lower

ones.

Α

Q So the overall interval of injection would be from

4941 to 5060, is that right?

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A Right.

Q Now, what we had identified here as Exhibit Number 3

is a schematic diagram of a well. Would you explain that and the cementing and casing program of this well, please?

A Total depth of the well is 5154 feet, five and a half inch casing was cemented at 5142 feet, 12 feet off the bottom with 270 sacks, 5050 pozmix. The top of the cement was determined to be at 2950.

Q Was that by temperature survey?

I believe it was by sonic 1%).

By sonic log. Okay. Proceed, please.

A I should have mentioned that eight and five-eighths such casing was fully cemented and circulated to surface, the botcom of the eight and five-eighths being at 273 feet.

Q is this surface casing of sufficient length to penetrate and go through all of the known producing water sands in this area?

A It is. That is the end of the Red Beds. I might add there is practically no surface water in this locality. I have shown the injection interval which we have previously mentioned, 4941 to 5,060; above that at approximately 4900 feet is a Guiberson tension packer on tubing and we would propose to inject the water down the tubing. It would be confined to these lower perforations by the packer and by the cement around the five and a half inch casing. We would, of course, have the annulus either open or with a gauge so that any possible commingling could be checked if the annulus pressured up.

Q Would this annulus be loaded with some sort of inhibited fluid, Mr. St. Clair?

A Yes. At the moment, I would imagine we would use light mid.

Q And this two and three-eighths inch tubing, that tubing will be plastic-coated?

A We did not plan that at the moment because I had planned to simply go ahead with the setup we had for the pumping operation.

Q The tubing that's in there presently?

A Yes. Ultimately, we will probably plastic-coat it. Q In other words, this trying and this proker are in the well at the present time, and were used for production purposes?

Right.

And the other perforations were previously squeezed

A Right.

A

then?

Q Now, Exhibit Number 4 here is a water analysis. Would you explain that, please? A That is a formation table analysis from our No. 1 well approximately 1320 feet west of the No. 7. This analysis was made some time after the initial completion of the well when we felt we had recovered all the acid water and any chemical additives that might have been injected during drilling, and it simply shows the parts per million chlorides to be 144,000, sulfate, 600, bicarbonates, 1350, for a total dissolved sol³⁴ of apploximately 145,000 parts per million. This is normal salt water for the Queen Formation.

Q And you don't anticipate⁽ that there would be any difficulty as far as injecting this water into the formation? It will be compatible, because it's the same water that's coming out?

A It's the same water that is coming out, and on our last acid treatment of this particular perforated interval, we had a maximum pressure. I believe, of a thousand pounds and it immediately fell off to zero. I'm locking at probably the low injection pressures at the moment.

Q How many producing wells are on this lease, Mr. St. Clair?

A Six. Six, after we take this No. 7 off.

Q And how much oil are those wells currently making?A Between 105 and 125 barrels a day.

 Ω A hundred and five to one hundred twenty-five barrels per day of oil in production. What is the rate of water production from those six wells?

9

A Approximately, I'll give you a range, 100 to 130. Q What is the trend insofar as water production is concerned?

A It has been declining. I think it's probably at about a leveled-out point now.

Q And that total water production, the 100 to 130 barrels of water per day, will be disposed of into this No. 7 well?

A Yes.

Q

tο,

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Q Now, if there's any affect from the injection of water into the formation here, would you anticipate that it would be a detrimental affect or possibly enhance the production?

A I feel sure it would enhance it because of the operations that we've had in the immediate area.

Q Then the floods in the other part of the pool have shown --

A They've shown highly successful.

-- successful response?

MR. NUTTER: Are there any other questions of

THE WITNESS: Yes.

MR. NUTTER: If there's no questions, the witness may be excused. The four exhibits by Mr. St. Clair will be admitted in evidence.

> (Whereupon, Applicant's Exhibits Numbers 1 through 4, inclusive, were admitted in evidence.)

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 3870? If not, we'll take the case under

advisement.

INDEX

WITNESSPAGED.W. ST. CLAIRDirect Examination by Mr. Nutter2

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	5	OFFERED AND
EXHIBITS	MARKED	ALMITTED
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Applicant's Exhibits	4	10
Numbers 1, 2, 3, 4		

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STATE OF NEW MEXICO)) ss COUNTY OF BERNALILLO)

I, CHARLOTTE MACIAS, Court Reporter in and for the County of Bernalille, State of New Mexico, do hereby certify that the foregoing and altached 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.

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1 28 68 L	D. G. Smernoft E. A. Honson S. 1-71 Hist Har U. J. Grynberg Hatele Orlgital	080263 k 3-65 1 K8P 150 2 1 135 13310	Marathon OPER. LEA UNIT FED.	A Constant Service Ser	0. Guidelparcen anti-	7 23-75 7.5 7-5-77 7.5 7-5-7 15 7-5-7 15 7-5-7 1-35 1-35 1-35 1-35 1-35
AND 0 20	<u> </u>	4 LON CALL (1.5) VULT 4.1) (5 4.7) (Union Marainion glails; ncts HBU Marainion glails; ncts HBP Duct HBP	1055555	Union (red. Strated) State	2 Shina
Attended Att	Albert Gattle Prsterie (till) 34 States (till) 54 States (till) 55 Nother Ossilia States (till) 55 Nother I. Roberts, S	U.S. Monthering Free		Leo V. & G.P. Sime, erol, S	The Solder of the leaves of a	Store
the fact of the second s	Patial PEHASON OF	Sult 1 Arice 1- 15-55(1) 1 KGS 282163 CS 0560433 1525 CS 0560433	funien Sinc'air CG. C HISP RBJ HEU Passing Gifar CG. 2	Hisrothan I fen Amer. 6-16-63 6-16 - 41 25 5555 16 5555	Philips HBP	(derfer) h.
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. 69 Threibeld	- Cat - Cat antis		Antes Constants		10.0010 E-1922	E-1923 W.H. 11 3.
Corper Aris.	1	26	finest A Hanson!	- Jurre	29	28

Case 3870

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A.

Diagrammatic skotch of preposed salt water injection System in No. 7 well, 32 20 Clair Superior - Federal lesse 1980' N & & lines, Sec. 25 7 195, R 34 8, Lea Co., N. Hex. = <= 23%"sus tubing (solt water indection line) open on gauge 8 5/8" csq comented @ 273' w/125 sax regular, circulated to surface loaded up light mud. Top cement 2950' Guiberson tension packer @ 4900 NUTTER COMMISSION in Injection internal 4941-5060 EXAMINER 0 Z CONSERVATION EXHIBIT 0 m 0 Z BEFORE 5/2" csg. comented @ 5142. w/270 sax So: 50 Pozmix ñ Э. О TE 5154 Cari 3870

CHEMICAL COMPANY DIVISION OF THE DY

	ATORY REPORT
WATER	ANALYSIS

	<u></u>	TER CHAETSIS	
TO:	D.W. St. Clair	LABORATORY LOCATION HODDS, N. I.	4649
	501 First National Bank Bldg. Midland, Texas	COMPANY D.W. St. Clair	Superior Federal #1
		Pool [Pear] Queen	LOCATION

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1997 - 19	and a star of the	i i i	Lea		STATE	Maxino	
DATE SAMPLE SUSHIT		FORMATION		New Mexico			
	ay 10, 1964	Penrose		5043- 5058			
SAMPLE SOURCE			SUBMITTEC BY		TESTS DESIRE	2.5	
Si	wab		Mr. Joe	Mc_Kinney		W. ZA	
	ррм	EPM		PPM		EPM	
CALCIUM	11900	585	CHLORIDE	144000		4040	$\frac{1}{12}$
MAGNESIUM	7240	594	SULFATE	600		13	
SODIUM	67400	2896	BICARBONATE	1350		22	1
IRON			CARBONATE	·	• •	·	
HYDROGEN SULFIDE			HYDROXIDE			ter en la seconda secon Seconda seconda s	rs
SPECIFIC GRAVITY	ат 79 - ғ	рн 5.3	CoCy/MgCy	% SALT SA	TURATION	474 	
4000	3000 200	CH 1000	ART OF EPM	1000		ioco a	3000
CO 3 Inninini							e o T

SO₄ CO₃ REMARKS: Formation water analysis from west offset well to No.7, which is to be converted

to <u>SWD well</u>. BEFORE EXTIMUTER NUTTER OIL CONSTANTION COMMISSION EXCILENT NO. _ 3870 0111 - TT. P CASE NO.

5-10-64 F.F. Flippen CHEMIS

Caes 3870