

CASE 3972: Application of SUNSET
INTERNATIONAL FOR SALT WATER
DISPOSAL, ROOSEVELT COUNTY.

Case Number

3972

Application
Transcripts.

Small Exhibits

ETC.

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

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

December 2, 1968

EXAMINER HEARING

IN THE MATTER OF:)

Application of Sunset)
International Petroleum)
Corporation for salt)
water disposal, Roosevelt)
County, New Mexico.)

Case No. 3972

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Case No. 3972.

MR. HATCH: Application of Sunset International Petroleum Corporation for salt water disposal, Roosevelt County, New Mexico.

MR. MORRIS: Dick Morris, appearing on behalf of the applicant, Sunset International Petroleum Corporation. I have one witness, Mr. Ed Mays. I ask that he be sworn, please.

(Witness sworn.)

(Whereupon, Applicant's Exhibits Numbers 1 through 4, inclusive, were marked for identification.)

MR. NUTTER: Are there any other appearances in Case 3972?

MR. COOTER: Yes, sir. Paul Cooter, appearing for McCoy and Stevens. We will have one witness, Mr. McCoy.

E. B. MAYS

called as a witness on behalf of the Applicant, and having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Mays, please state your name and where you reside.

A E. B. Mays, Midland, Texas.

Q By whom are you employed, and in what capacity?

A Sunset International Petroleum Corporation, and I am

Area Production Manager.

Q Mr. Mays, would you state your education, and briefly relate your experience in the petroleum industry.

A I completed the requirements for a B.S. Degree in Petroleum Engineering, University of Oklahoma, in January, 1951, and I have since been employed as petroleum engineer and drilling engineer, first with Kerr-McGee Oil from 1951 to 1952, roughly, and the largest part of my experience has been with Sunset International Petroleum as Petroleum Engineer and later Production Manager.

Q What areas has your experience covered, geographically?

A Rocky Mountain area, principally the states of New Mexico, Colorado, Wyoming, Montana, and as of late West Texas area.

MR. MORRIS: Are the witness's qualifications acceptable?

MR. NUTTER: They are.

Q Mr. Mays, would you please leave your seat and go around by the Examiner, and refer to what has been marked as Exhibit Number 1? Point out the pertinent features of that exhibit.

A This exhibit is a structural contour map on the top of the Bough "C" Formation.

MR. NUTTER: Why don't we put this up on the board, and then everybody can see it better.

A Exhibit Number 1, we have a structure contour map drawn on the top of the Bough "C" member, indicating closed structure, very minor closure, actually here and here. These are very low relief structures. Our acreage consists of the north half of the southwest quarter in which we have two wells completed, twin wells, one well completed in the Bough "C" Formation, which is now not commercial, and a San Andres well located approximately 150 feet north of it.

MR. NUTTER: That would be the north half of the southwest quarter of Section 16, colored yellow?

THE WITNESS: That's right.

We also have marked on here a cross-section drawn from A to A-prime, which is on Exhibit 2 here to here, (indicating) this being A, and this A-prime.

Q Does this exhibit show all of the San Andres and Bough "C" production in this area?

A Yes, sir, it does. It shows these wells that have the triangles around them are San Andres wells. The balance of the wells, with the exception of one well, are Bough "C" wells.

Q Going on to what has been marked Exhibit Number 2,

your cross-section, point out the features of that exhibit.

A Well, we have this hung on the Three Brothers Formation, which is a pretty prominent member here. And then, a correlation across here indicating that these are the same members through these wells of Bough "A", Bough "B", and the top of Bough "C", being the member that we are principally interested in. It is pretty evident that it correlates correctly here. You see a member on top, a break in here all the way across, and all four wells are completed in the upper part of them. Prorations are as follows, marked here and here, (indicating), just below the top of the shale section in the developed crystalline dolomite there. And I think it is evident from this exhibit that all four of these wells are completed in the same section of Bough "C".

O All right. Resume your seat, please.

Would you refer to what has been marked as Exhibit 3, entitled Production History, and explain what that exhibit shows?

A This exhibit is the production history for our two wells, the Allstate No. 1, and our O'Neill State No. 1, completed in the San Andres, showing the history from completion. Our Bough "C" well has, as of October, 1967, has produced approximately 125,000 barrels of oil, but as of that time has produced

Sam,

If you
will check
the Docket
Sheet, I
believe it
shows
O'Neill
w/2 L's.
Maybe you
should check
the Oil
Register.

Bar

no oil. It still escapes a very small amount of gas which is really a non-commercial quantity, but since we are operating another well adjoining it, we can't afford to continue producing the gas. This well has made virtually no water since its inception.

The San Andres well has made water from the start, has produced to this date approximately 35,000 barrels of oil, and is presently producing about 14, 15 barrels of oil per day, and between 12 and 150 barrels of water a day.

Q What is being done with the water at the present time?

A At the present time, it is being disposed of in an open pit.

Q Will this water come within the Commission's order requiring you to refrain from disposing of it into an open pit, effective January first?

A It will.

Q If you can solve your water problem, Mr. Mays, in your opinion, can the oil production from the San Andres be increased?

A Yes. We have a high fluid level in this well, and if we could dispose of water, we could increase the fluid withdrawals, and probably increase our oil production by possibly ten barrels a day.

Q Please refer to Exhibit Number 4, the diagrammatic sketch, and explain how you would propose to equip this well for injection.

A Well, first, I presume it should go with the casing program here. This well was, of course, originally completed as a Bough "C" well with a casing program necessary for that type completion. There is 13 and three-eighths-inch casing set at 415 feet, cemented with 360 sacks of cement, and the cement was circulated to the surface. Eight and five-eighths-inch casing was then set at 4,193, and cemented with 1,480 sacks of cement, and the estimated top of the cement behind the eight and five-eighths is 1,200 feet from the surface. Then four and a half-inch casing was set at 9,750 feet, and cemented with 375 sacks of cement, and the estimated top of the cement on this should be 5,400 feet. These are all calculated tops of the cement, with the exception of the surface casing where the cement was circulated.

What we propose to do then, in converting this well to an injection well, is to run two-inch plastic-lined tubing with a packer, the packer to be set at 9,660 feet, and inject water below this packer into prorated interval, 9,679 to 9,685.

Q Mr. Mays, will you run an injectivity test on this well?

A No, as such, we have not.

Q Do you have an opinion concerning the ability of the well to take water?

A Yes, we feel that it will take water readily, since in subsequent flushing and acid, small acid wash treatments, we found that the well would take all the fluid on a vacuum.

Q At the onset of injection, what would you estimate to be your initial rate of injection?

A Probably about 430 barrels a day.

Q Would pressure be required to achieve this rate of injection?

A We do not anticipate any pressure during the initial phases. Probably if there is any pressure, it might come at a much later date.

Q Mr. Mays, do you have an opinion concerning the effect of the proposed injection of water into this well on adjoining wells, and other wells in this field?

A Yes, we do not feel that there would be any adverse effect at all. If anything, there could be some help derived from it.

Q Have you discussed the proposed conversion of this well to injection with your immediate offset operator, Mr. O'Neill?

A Yes, we have discussed it with him.

Q Did Mr. O'Neill make any objection to your proposed injection program?

A None, whatsoever.

Q In your opinion, Mr. Mays, will waste be caused or will correlative rights be impaired by the granting of this application?

A No, I do not think so at all.

Q Were these Exhibits 1 through 4 prepared by you or under your supervision?

A Yes, they were.

MR. MORRIS: At this time, Mr. Examiner, we offer Applicant's Exhibits 1 through 4 into evidence.

MR. NUTTER: Without objection, Applicant's Exhibits 1 through 4 will be admitted in evidence.

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

MR. MORRIS: We have previously submitted with our application a log on the well. We ask that it be made a part of the record, also.

MR. NUTTER: It is a part of the record.

MR. MORRIS: That is all we have on direct examination.

MR. NUTTER: Are there any questions of this witness?

MR. COOTER: Yes, sir.

MR. NUTTER: Mr. Cooter.

CROSS EXAMINATION

BY MR. COOTER:

Q Mr. Mays, was there a compatability test made, or did your company make it on the water from the San Andres Formation and the Bough "C" water?

A No, there was not.

Q If the application of your company should be granted, do you propose to treat the water from the San Andres Formation in any way before injecting it into the Bough "C" Formation?

A We will run compatability tests, and if it is so indicated that it needs treating, we do plan to treat it.

MR. COOTER: That is all.

MR. MORRIS: Nothing further.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Mays, the structural position as indicated by your Exhibit Number 1 of your disposal well is almost the same -- that may be slightly lower than the O'Neill well directly to the west. Can you give me the prorated interval in that O'Neill well?

A Yes, I will have to refer to the map up there again.

Q You do have the prorated intervals of all of these wells indicated on the cross-section?

A Right.

Q So the prorated interval of the O'Neill well would be 9,671 to 9,677, and the prorated interval of your well is 9,679 to 9,685?

A Correct.

Q So you are some seven, eight, or nine feet lower than that well?

A Right.

Q What is the reservoir drive mechanism in this South Prairie-Cisco Pool?

A Actually, in the vicinity of our well, it appears to be mainly solution gas. We recovered virtually no water in our well, nor did the O'Neill, Mr. O'Neill's well west of us.

Q So the condition of your O'Neill State No. 1 is not a condition of being watered out, or anything? It is simple depletion?

A Simple depletion, that is correct.

Q And it still makes a small amount of gas, but almost negligible?

A Correct.

Q The well has experienced a high degree of LGOR?

A That is correct.

Q Now, the only San Andres production in the pool is your Well No. A-1, and the well immediately to the south and to the southwest, so there are three San Andres producers?

A That is correct.

MR. NUTTER: Any further questions of the witness? You may be excused. Do you have anything further, Mr. Morris?

MR. MORRIS: Not from this witness. I might have something further, depending upon Mr. Cooter's presentation.

MR. NUTTER: Mr. Mays, the annulus here would be loaded with some sort of innert fluid, I assume?

THE WITNESS: That is correct.

MR. NUTTER: And it would be equipped with a gauge at the surface?

THE WITNESS: Right. And we plan to use, I think this is stated, we will be using a closed system here.

MR. NUTTER: And you will treat the water in the event the analysis shows the water would not be compatable with any water in the Cisco?

THE WITNESS: That is correct.

MR. NUTTER: You may be excused.

Mr. Cooter, your witness?

WILLIAM G. McCOY

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

DIRECT EXAMINATION

BY MR. COOTER:

Q You are the same Bill McCoy who testified in the preceeding case?

A I am.

Q Do you have or own a production interest in this field?

A I do. It would be the McCoy-Stevens No. 1 Hatch, which is located in Unit F, Section 20, 8 South, 36 East.

Q That is immediately west of the initial discovery well?

A That is correct.

Q That well is producing from the Bough "C" Formation?

A That is correct.

Q What is the amount of your production from that well to date?

A This well was completed in October of 1961, and the cumulative production from this well as of the first of October, 1968, is 204,463 barrels of oil. For the month of November, 22 days, this well is currently averaging 104 barrels of oil and 20 barrels of water.

(Whereupon, McCoy and Stevens' Exhibit Number 5 was marked for identification.)

Q I direct your attention to what I have marked as the McCoy and Stevens' Exhibit Number 5. Would you relate what that is?

A This is oil production curve that I prepared on our lease, and I keep it current to determine the reservoir mechanism. And in my opinion, although initially the reservoir might have been classified solution gas, I think it is now operating under a direct water drive in the vicinity of our lease.

Q Is the production shown on that, the stopping of the decline in production, and the increase in production commencing with about 1964, indicative of a water drive?

A To me, it is.

Q At your request, did Halliburton make a compatibility test of the water produced from the San Andres Formation at the applicant's well, and the Bough "C" Formation produced from your well?

A The San Andres water, yes, Halliburton did prepare this analysis. But the San Andres water was the sample obtained from the J. M. Hooper No. 2 Perry Federal, which is located in the southeast quarter of the southeast quarter of Section 17.

This is San Andres. The Bough "C" water was obtained from our well, and on the bottom they prepared a 50-50 mixture of the water, and it shows that it forms a black precipitate identified as iron sulfide, which would infer to me that these two waters are not compatible.

(Whereupon, McCoy and Stevens' Exhibit Number 6 was marked for identification.)

Q I show you what I have marked as McCoy and Stevens' Exhibit Number 6, and based upon that -- I guess you have already answered it. Are the two waters, two types of water produced from the two different formations, compatible?

A They are not, in my opinion.

Q Do you have something else you would like to add to your testimony, Mr. McCoy?

A I would like to have a comment on the O'Neill well, which I believe would be the offset to the proposed San Andres well, Sunset International, and their well has an accumulative production of 226,026 barrels of oil as of September, 1968. The current production is only 62 barrels of oil per day, which in effect would be a marginal well in the field. Therefore, I could see their point in not objecting to it. However, in our case, our well is currently averaging 104 barrels of oil a day. And I think any foreign substance injected into the primary

reservoir would be detrimental to the ultimate recovery of the field.

MR. NUTTER: Are there any questions of Mr. McCoy?

CROSS EXAMINATION

BY MR. MORRIS:

Q Mr. McCoy, your well is located approximately one mile from the proposed injection well, is it not?

A That is correct.

Q You indicate that you believe that the injection of water into the proposed well is going to have a detrimental effect upon your well.

A We will clarify that. The injection of the San Andres into Bough "C" water might. I cannot say it will definitely have that effect. I am speaking primarily of the San Andres water into the Bough "C" Formation.

Q Mr. McCoy, is it your opinion that your well is producing from the same pool, the same accumulation as the subject well?

A The subject well, we are referring again strictly to Bough "C"?

Q Yes.

A In fact, I believe that you have a copy of the field analysis I have prepared for the Roswell geological, showing the

basic structure of the field and the pertinent reservoir data.

Q Do you operate any San Andres wells in this field?

A Not as an individual. I supervise them.

MR. MORRIS: I have no further questions.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. McCoy, you have an arrested decline, and even an actual increase in production over the history of this well of yours. Do you have any accompanying bottom-hole pressure data?

A No.

Q What has the bottom-hole pressure been here?

A It would be purely a guess, but I would assume approximately 1,900 pounds, bottom-hole pressure.

Q Present pressure?

A Right, from an initial 2,800 pounds.

Q Now, you mentioned that your well was presently making 104 barrels of oil per day. What about water production?

A Twenty barrels, I believe. One hundred four barrels of oil, and twenty barrels of water per day.

Q What has been the history of production so far as water is concerned?

A Water, I would say over the history, has been fairly

generally level at about 1900 barrels, but at the time I ran the test we had only 20 barrels. But I would say the average has been pretty steady all through the history of our well.

Q From its inception, it has been making about 20 barrels of water?

A One thousand nine hundred barrels a month would be about 60 barrels a day, roughly.

Q So the water production has fallen off, then?

A Well, I don't believe so in the last instance of this test. If we run a test each day, I think we would find possibly the next day it would be higher than this, but I would say if I picked an average of the history of the well, it would be approximately 60 barrels a day. But I think the reason the volume sounds low is the fact that I believe I am the only operator in the field that has maintained a tubing pump hydraulic system, where others have gone to seven-inch casing pumps, and their withdrawal has been on the average about 19,000 barrels a month.

Q How about the O'Neill well directly west to the subject well, does it make water?

A Unfortunately, I didn't record the water production on that well. I merely found that it was producing 62 barrels of oil per day, which inferred to me that it was at or approaching

the economic limit.

MR. NUTTER: Mr. Mays, do you happen to know whether the O'Neill Well directly west of your well makes water or not?

MR. MAYS: It makes very little water. In fact, it is very similar to our well. As he says, and he has good evidence to support it, that he has a water drive. However, in the vicinity of our well, there is no indication of that water drive.

MR. NUTTER: If there is a water drive in the pool, it comes from the west side of the --

MR. MAYS: I would assume that, because if we summarize the whole history of the field, I think you will find in Section 20 the Lone Star wells, and considerable amounts of water are produced in excess of 19,000 barrels a month per well. Again, I state that they have used casing pumps, large ones, where I maintain a minimum withdrawal to maintain reservoir balance in my well.

MR. NUTTER: Apparently from your Halliburton analysis, Exhibit Number 6, the Pennsylvanian water contains soluble iron and negligible amounts of sulfides, whereas the San Andres water contains negligible iron and some sulfides?

MR. MAYS: Yes, sir.

MR. NUTTER: So apparently, according to Halliburton,

when you get the two waters together, they precipitate out as iron sulfide?

MR. MAYS: Yes.

MR. NUTTER: Is it possible to treat the water before you dispose of it to eliminate the iron?

MR. MAYS: I just can't say that directly. I would say that there is the possibility.

MR. NUTTER: To eliminate the sulfides, I realize you can't treat the water in the Pennsylvanian to remove the iron.

MR. MAYS: I would say there is a good chance that we could remove the sulfides.

MR. NUTTER: Although there may not be any water in the Bough "C" Zone of the Pennsylvanian in the immediate area of your well, if the water should migrate to a place where there is water in the Pennsylvanian Formation, and evidently the structure does contain water to some degree somewhere, it could precipitate out and block the formation?

MR. MAYS: That is possible.

MR. NUTTER: Any other questions of Mr. McCoy? You may be excused. Do you have anything further, Mr. Cooter?

MR. COOTER: No, sir.

MR. NUTTER: Mr. Morris?

MR. MORRIS: No, sir.

MR. NUTTER: Does anyone else have anything to say in Case 3972? I will take the case under advisement.

MR. COOTER: Did we offer our exhibits?

MR. NUTTER: McCoy and Stevens' Exhibits 5 and 6 will be admitted in evidence.

(Whereupon, McCoy and Stevens' Exhibits Numbers 5 and 6 were admitted in evidence.)

MR. NUTTER: If there is nothing further in Case No. 3972, we will take the case under advisement.

I N D E X

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STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, SAM MORTELETTE, Court Reporter 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.

Sam Mortelette
 COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings of the Xradiver hearing of Case No. 3972 heard by me on 12/2, 1963.
[Signature]
 New Mexico Oil Conservation Commission

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON B. HAYS
MEMBER

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

P. O. BOX 2088
SANTA FE

December 9, 1968

Mr. Richard S. Morris
Montgomery, Federici, Andrews
& Hannahs
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 3972
Order No. R-3616
Applicant:
Sunset International Petroleum
Corporation

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.
A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC
Other State Engineer Office
Mr. Paul Cooter

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. 3972
Order No. R-3616

APPLICATION OF SUNSET INTERNATIONAL
PETROLEUM CORPORATION 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 December 2, 1968, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 9th day of December, 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, Sunset International Petroleum Corporation, is the owner and operator of the O'Neill State Well No. 1, located in Unit L of Section 16, Township 8 South, Range 36 East, NMPM, South Prairie Field, Roosevelt County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced San Andres salt water into the Bough "C" zone of the Pennsylvanian formation, with injection into the perforated interval from approximately 9679 feet to 9685 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at approximately 9660 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That the applicant should continuously treat the water to be disposed of in a manner adequate to accomplish removal of

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CASE No. 3972
Order No. R-3616

substantially all sulfides to avoid adverse precipitative effect upon the waters present in the disposal zone.

(6) 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, Sunset International Petroleum Corporation, is hereby authorized to utilize its O'Neill State Well No. 1, located in Unit L of Section 16, Township 8 South, Range 36 East, NMPM, South Prairie-Field, Roosevelt County, New Mexico, to dispose of produced San Andres salt water into the Bough "C" zone of the Pennsylvanian formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 9660 feet, with injection into the perforated interval from approximately 9679 feet to 9685 feet;

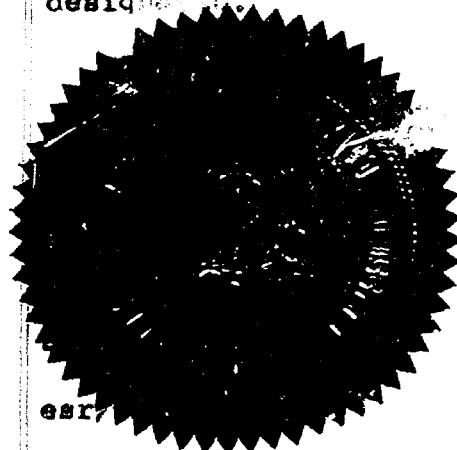
PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer;

PROVIDED FURTHER, that the applicant shall continuously treat the water to be disposed of in a manner adequate to accomplish the removal of substantially all of the sulfides present in order to avoid adverse precipitative effect upon the waters present in the disposal zone.

(2) That the applicant shall submit monthly reports of its 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
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

GILTON B. HAYS, Member

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

PRODUCTION HISTORY

O'NEILL STATE #1
Bough C

O'NEILL STATE A #1
San Andres

Date	Oil	Water	Gas
February 64	3625	0	3637
March	5775		8524
April	5605		9507
May	5723		10,696
June	5681		10,146
July	5694		10,480
August	4447		7108
Sept.	5487		8543
Oct.	5449		11,646
Nov.	5482		10,054
Dec.	5907		9821
January 65	5931		9062
Feb.	5308		12,607
March	5869		13,497
April	5528		13,068
May	5653		12,361
June	5233		12,065
July	5431		16,609
August	5422		17,245
Sept.	4079		19,794
Oct.	3662		19,877
Nov.	2550		16,143
Dec.	1284		8914
January 66	1041		5066
Feb.	1057		4878
March	1303		5247
April	1409		6962
May	1024		5783
June	825		5096
July	671		5156
August	408		3406
Sept.	623		4577
Oct.	526		2722
Nov.	312		3287
Dec.	255		2079
January 67	189		1403
Feb.	130		1172
March	136		1372
April	99		1051
May	103		1207
June	76		841
July	75		1449
August	44		1148
Sept.	27		927
Oct.	0		159
Nov.	0		0
Dec.	0		454

No Water

Cumulative
25,000
80
100,000

Date	Oil	Water	Gas
April 65	16		0
May	576	6138	
June	1114	2700	
July	1161	2430	
Aug.	1155	2460	
Sept.	1120	2280	
Oct.	1182	2340	
Nov.	1209	1230	
Dec.	1330	1680	
Jan. 66	2490	3750	
Feb.	1544	4800	
March	1295	5040	
April	1709	4950	
May	1565	3600	
June	1156	3510	
July	1078	4950	
August	1055	4080	
Sept.	959	3480	
Oct.	1452	2820	
Nov.	492	2520	
Dec.	872	3360	
Jan 67	820	3420	
Feb.	767	3420	
March	773	4050	
April	756	4050	
May	958	3720	
June	814	3720	
July	585	3630	
August	1017	3660	
Sept.	829	3660	
Oct.	470	3690	
Nov.	373	3810	
Dec.	512	3960	
Jan. 68	538	3090	
Feb.	415	3090	
March	382	3240	
April	357	3750	
May	345	3750	
June	706	3750	
July	412	3625	
August	244	3000	
Sept.	288	3050	

No Gas

new
11.15
1000
Cumulative
35000
100-150
1000/day

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<i>Hept</i>	EXHIBIT NO. <i>3</i>
CASE NO.	<i>3972</i>

O'NEILL STATE #1
Bough C

<u>Date</u>	<u>Oil</u>	<u>Water</u>	<u>Gas</u>
January 68	0	0	516
February	0		796
March	0		260
April (Converted to gas well)			419
May			406
June			220
July			341
August			324
Sept.			416

O'NEILL STATE A #1
San Andres

<u>Date</u>	<u>Oil</u>	<u>Water</u>	<u>Gas</u>
-------------	------------	--------------	------------

BEFORE EXAMINER NUTTER

OIL CONSERVATION COMMISSION

Appl. EXHIBIT NO. 4

CASE NO. 3972

13 3/8"
Set @ 415'

360 sx. cmt.
Circ. to surface

8 5/8"
Set @ 4193'

Cmt w/1480 sx. cmt. behind 8 5/8"
Top cmt. @ 1200'

2 3/8" EUE 4.7" N-80 Plastic Lined

Cmt w/375 sx. cmt. behind 4 1/2"
Top cmt. @ 5400'

Packer set @ 9660'

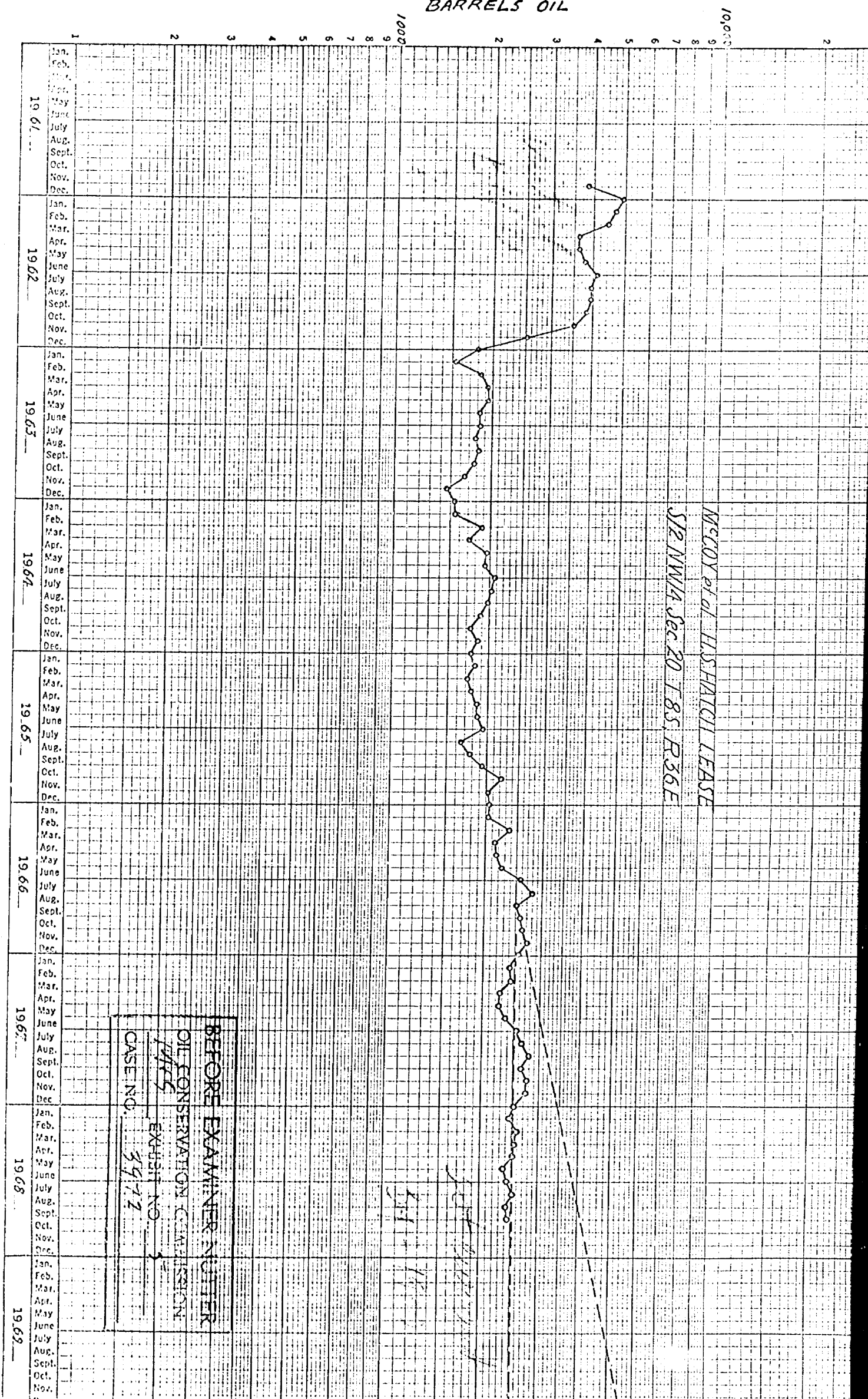
Perf 9679-85, 2 jets/ft

4 1/2"
Set @ 9750'

TO @ 9750'

Proposed
Salt Water Disposal Well
O'Neill State # 1
Roosevelt County, New Mex.

BARRELS OIL



McCoy et al. U.S. PATENT LEASE
S12 NW1/4 Sec 20 T8S, R36E

BEFORE EXAMINER NUMBER
OIL CONSERVATION COMMISSION
1445 EXHIBIT NO. 3
CASE NO. 3472

541-14

LABORATORY WATER ANALYSIS No. 11-25-68

To Bill McCoyDate 11-25-68Roswell, New Mexico

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management. It may, however, be used in the course of regular business operations by any person or persons and employees thereof receiving such report from Halliburton Company.

Submitted by _____ Date Rec. 11-22-68

Well No.	Depth	PRAIRE SOUTH	Formation	PRAIRE SOUTH
County		BOUGH "C" ✓	Source	SAN ANDRES ✓
		H. S. Hatch #1		Perry Fed. #2
Resistivity		.075 @ 71 F.		.054 @ 71 F.
Specific Gravity		1.078		1.157
pH		6.1		5.8
Calcium (Ca)		2,400		21,200 *MPL
Magnesium (Mg)		1,560		2,640
Chlorides (Cl)		70,000		142,000
Sulfates (SO ₄)		105		420
Bicarbonates (HCO ₃)		185		450
Soluble Iron (Fe)		20 ✓		Nil
Sulfides (H ₂ S)		Nil		17 ✓

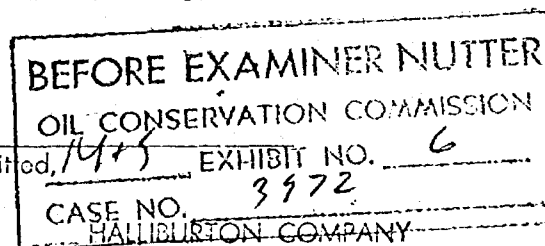
Remarks: H. S. Hatch #1 when mixed 50/50 with the Perry Fed. #2 forms a black precipitate identified as Iron Sulfide.

*Milligrams per liter

Respectfully submitted,

Analyst: Whitfield

cc:

By Frank Whitfield
DIVISION CHEMIST

NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether it be to act or omission, resulting from such report or its use.

'68 Nov 8 PM 2 12

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION OF SUNSET INTERNATIONAL
PETROLEUM CORPORATION FOR SALT
WATER DISPOSAL, ROOSEVELT COUNTY,
NEW MEXICO

No. 3972
Hearings
*12/2*APPLICATION

Comes now Sunset International Petroleum Corporation, by its attorneys, and applies to the New Mexico Oil Conservation Commission for permission to inject salt water into the Bough C formation in its O'Neill State Well No. 1, located in Unit L, Section 16, Township 8 South, Range 36 East, Roosevelt County, New Mexico, and in support of its application states:

1. Sunset International Petroleum Corporation is the operator of the $N\frac{1}{2}$ $SW\frac{1}{4}$ of Section 16, Township 8 South, Range 36 East, Roosevelt County, New Mexico, and is the operator of the O'Neill State Well No. 1, located 1980 feet from the South line, and 660 feet from the West line, in Unit L, of said Section 16.

2. The said O'Neill State Well No. 1 is a non-commercial well that is presently completed in the Bough C formation. Adjacent to the said O'Neill State Well No. 1, is the applicant's O'Neill State A Well No. 1, also located in Unit L of said Section 16, which well is producing oil and water from the San Andres formation.

3. Applicant proposes to convert its O'Neill State Well No. 1 to a salt water disposal well and proposes to inject produced salt water from the San Andres formation into the Bough C formation in the said well in the interval from 9679 feet to 9685 feet.

4. Attached to this application is NMOCC Form C-108, a plat showing the location of the proposed salt water disposal well and all operators within a two mile radius thereof, a schematic diagram of the proposed salt water disposal well, and a log of the well.

DOCKET MAILED

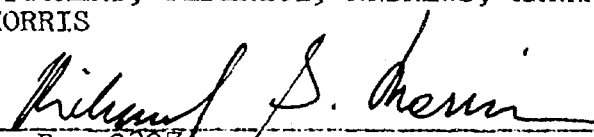
Date 11-21-68

5. Approval of this application will prevent waste and protect correlative rights.

WHEREFORE, Sunset International Petroleum Corporation requests that this application be set for hearing before the Commission or one of its examiners, and that the Commission enter its order approving this application.

MONTGOMERY, FEDERICI, ANDREWS, HANNAHS
& MORRIS

By


P.O. Box 2307
Santa Fe, New Mexico

Attorneys for Sunset International
Petroleum Corporation.

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

Case 3972

OPERATOR Sunset International Petroleum Corp.		ADDRESS 201 Wall Bldg., Suite 308-Midland, Texas			
LEASE NAME O'Neill State	WELL NO. 1	FIELD Prairie-Cisco, South	COUNTY Roosevelt		
LOCATION UNIT LETTER L ; WELL IS LOCATED 1980 FEET FROM THE South LINE AND 660 FEET FROM THE West LINE, SECTION 16 TOWNSHIP 8S RANGE 36E NMPM. Roosevelt					
CASING AND TUBING DATA					
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	415'	360	Circulated	
INTERMEDIATE	8-5/8"	4193'	1480	1200'	Temperature Surv.
LONG STRING	4-1/2"	9750'	375	5400'	" "
TUBING	2-3/8"	9660'	NAME, MODEL AND DEPTH OF TUBING PACKER Baker Model R 9660'		
NAME OF PROPOSED INJECTION FORMATION Bough C		TOP OF FORMATION 9679'		BOTTOM OF FORMATION 9685'	
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLE? Perforation		PROPOSED INTERVAL(S) OF INJECTION 9679-85' 2 jets/ft.	
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No		IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Gas & Oil		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? No.	
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA 1300'		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA 5000'		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA None known	
ANTICIPATED DAILY INJECTION VOLUME (BBL/DAY)	MINIMUM 200	MAXIMUM 500	OPEN OR CLOSED TYPE SYSTEM Closed	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Gravity	APPROX. PRESSURE (PSI)
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -			WATER TO BE DISPOSED OF *Salt Water		NATURAL WATER IN DISPOSAL? NONE
ARE WATER ANALYSES ATTACHED? No.					
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Henry Reid, Milnesand, New Mexico					
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL					
Joseph I. O'Neill, Jr. 410 West Ohio, Midland, Texas					
J. W. Huber Corporation, Vaughn Bldg., Midland, Texas					
American Petrofina Co., of Texas, P. O. Box 1311 - Big Spring, Texas					
McCoy & Stevens, 610 Security Bank Bldg., Roswell, New Mexico					
Lone Star Producing Company, 300 Commercial Bank Bldg., Midland, Texas					
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL		THE NEW MEXICO STATE ENGINEER
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)?	PLAY OF AREA		ELECTRICAL LOG		DIAGRAMMATIC SKETCH OF WELL

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

(Signature)

(Title)

(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil 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.

* San Andres water from our O'Neill State 1-A will be injected into the above mentioned well

Proposed
Salt Water Disposal Well
O'Neill State # 1
Roosevelt County, New Mex.
San Andres Well •
Bought "C" Well •

13 3/8"
Set @ 415'

360 sx. cmt.
Circ. to surface

8 5/8"
Set @ 4193'

Cmt w/1480 sx. cmt. behind 8 5/8"
Top cmt. @ 1200'

2 3/8" EUE 4.7" N-80 Plastic Lined

Cmt w/375 sx. cmt. behind 4 1/2"
Top cmt. @ 5400'

4 1/2"
Set @ 9750'

Packer set @ 9660'

Perf 9679-85, 2 jets/ft

TD @ 9750'

Case 3972
Proposed
Salt Water Disposal Well
O'Neill State # 1
Roosevelt County, New Mex.

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. 3972

Order No. R- 3616

APPLICATION OF SUNSET INTERNATIONAL
PETROLEUM CORPORATION 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 December 2, 1968,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter

NOW, on this day of December, 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, Sunset International Petroleum Corporation,
is the owner and operator of the O'Neill State Well No. 1,
located in Unit L of Section 16, Township 8 South, Range
36 East, NMPM, South Prairie ^{Field} ~~Cisco Pool~~, Roosevelt
County, New Mexico.

(3) That the applicant proposes to utilize said well to
dispose of produced ^{San Andres} salt water into the Bough "C" zone of the
Pennsylvanian
formation, with injection into the perforated interval
from approximately 9679 feet to 9685 feet.

(4) That the injection should be accomplished through
2 3/8-inch plastic-lined tubing installed in a packer set at

approximately 9660 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus ~~or the annulus~~ left open at the surface in order to determine leakage in the casing, tubing, or packer.

(b) (1) 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, Sunset International Petroleum Corporation, is hereby authorized to utilize its O'Neill State Well No. 1 located in Unit L of Section 16, Township 8 South, Range 36 East, NMPM, South Prairie-Field ~~Cisco Pool~~, Roosevelt County, New Mexico, to dispose of produced ^{San Andrea} salt water into the Bough "C" zone of the Pennsylvanian formation, injection to be accomplished through

2 3/8 -inch tubing installed in a packer set at approximately 9660 feet, with injection into the perforated interval from approximately 9679 feet to 9685 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 ~~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 its 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.

PROVIDED FURTHER, that the applicant shall continuously treat the water to be disposed of in a manner adequate to accomplish the removal of substantially all of the sulfides present in order to avoid adverse precipitative effect upon the waters present in the disposal zone.

(5) That the applicant should continuously treat the water to be disposed of in a manner adequate to accomplish the removal of substantially all of the sulfides present in the disposal zone.

LABORATORY WATER ANALYSIS

No. 11-25-68

To Bill McCoyDate 11-25-68Roswell, New Mexico

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Submitted by _____

Date Rec. 11-22-68

Well No. _____	Depth _____	PRAIRE SOUTH Formation	PRAIRE SOUTH
County _____		BOUGH "C" Source	SAN ANDRES
		H. S. Hatch #1	Perry Fed. #2
Resistivity _____		.075 @ 71 F.	.054 @ 71 F.
Specific Gravity _____		1.078	1.157
pH _____		6.1	5.8
Calcium (Ca) _____		7,400	21,200 *MPL
Magnesium (Mg) _____		1,560	2,640
Chlorides (Cl) _____		70,000	142,000
Sulfates (SO ₄) _____		105	420
Bicarbonates (HCO ₃) _____		185	450
Soluble Iron (Fe) _____		20	Nil
Sulfides (H ₂ S) _____		Nil	17
_____		_____	_____
_____		_____	_____

Remarks: H. S. Hatch #1 when mixed 50/50 with the Perry Fed. #2 forms a black precipitate identified as Iron Sulfide.

*Milligrams per liter

Respectfully submitted, _____

Analyst: Whitfield

cc: _____

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
11-25-68 EXHIBIT NO. C
CASE NO. 3972
HALLIBURTON COMPANY

By Frank Whitfield
DIVISION CHEMIST

NOTICE

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