CASE 3835: Application of SINCLAIF OIL & GAS COMPANY FOR SALT WATER DISPOSAL, LEA COUNTY, N. MEX.

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Number ase Application Transcripts. Small Exhibits

GOVERNOR DAVID F. CARGO CHAIRMAN

State of New Mexico **Bil Conservation Commission**

LAND COMMISSIONER GUYTON B. HAYS MEMBER

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SANTA FE August 20, 1968 STATE GEOLOGIST A, L. PORTER, JR. SECRETARY - DIRECTOR

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

Santa Fe, New Mexico

Re :	Case No	3835		
	Order No.	R-3478	-	
	Applicant:	· · · · · · · · · · · · · · · · · · ·		

SINCLAIR OIL & GAS COMPANY

Dear Sir:

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

Very this yours,

Juli

A. L. PORTER, Jr. Secretary-Director

ALP/ir

Carbon copy of drder also sent to:

Hobbs OCC x

Artesia OCC____

Astec 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 PURPOSE OF CONSIDERING:

> CASE No. 3835 Order No. R-3478

APPLICATION OF SINCLAIR OIL & GAS COMPANY FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 14, 1968, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 20th day of August, 1968, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, Sinclair Oil & Gas Company, is the owner and operator of the State 251 Well No. 1, located in the SE/4 SE/4 of Section 28, Township 13 South, Range 33 East, HMPM, Lazy J-Pennsylvanian Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Upper Pennsylvanian formation, with injection into the perforated interval from approximately 9637 feet to 9682 feet.

(4) That the injection should be accomplished through 2-inch tubing installed in a packer set at approximately 9600 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to

-2-CASE No. 3835 Order No. R-3478

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

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

IT IS THEREFORE ORDERED:

(1) That the applicant, Sinclair Oil & Gas Company, is hereby authorized to utilize its State 251 Well No. 1, located in the SE/4 SE/4 of Section 28, Township 13 South, Range 33 East, MMPM, Lazy J-Pennsylvanian Pool, Lea County, New Mexico, to dispose of produced salt water into the Upper Pennsylvanian formation, injection to be accomplished through 2-inch tubing installed in a packer set at approximately 9600 feet, with injection into the perforated interval from approximately 9637 feet to 9682 feet;

<u>PROVIDED HOWEVER</u>, 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 tubing or packer;

<u>PROVIDED FURTHER</u>, that in the event the subject well is utilized for said disposal purposes after September 1, 1969, the tubing shall be plastic lined prior to said utilization.

(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 OID CONSERVATION COMMISSION nairman DAVID CARGO. GUATON B. HAYS Member Jr., Member & Secretary

Car 3835



SINCLAIR OIL & GAS COMPANY P. C. BOX 1920 Hobbs, N. I. 83240

16B JUL 26 ATT 8 30

July 25, 1968

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New Mexico Oil Conservation Commission State Land Office Building Santa Fe, New Mexico

Attention: Mr. A. L. Forter, Jr., Secretary-Director.

Dear Mr. Forter:

This letter refers to your conversation of this date with Mr. Les Clements concerning Sinclair's request for permission for temporary salt water disposal in the Lazy J (Permo-Penn) Field, Lea County, New Mexico.

Rice Engineering is preparing an engineering report on a fieldwide salt water disposal system. However, installation is not expected to be completed until early 1969. Because of this delay and due to increasing salt water production on two Sinclair leases, we propose to temporarily convert our <u>State 251 Well No. 1</u> located in SE/4, SE/4 of Section 28, T-135, 3-335 to salt water disposal.

Current water production from four wells on Sinclair's State 245 and 251 Leases amounts to 285 barrels per day and goes to unlined pits. We plan to install submersible pumping equipment in our State 245 No. 5, to squeeze existing Perm perforations and deepen to the Lower Penn in our State 251 No. 3. We anticipate that our water production will be increased to 1,200-1,400 barrels per day as a result. Rather than increase the size of existing pits to handle increased water volumes, we propose to dispose of all water temporarily into the depleted Penn zone in the aforementioned producer until the Rice system is completed.

Injection into State 251 No. I would be down taking, tellow a packet set in the 52"OD casing, and through existing perforations at 9637-571 and 9664482. Casing annulus would be loaded with inhibited fresh water and a pressure gauge installed at the surface for leak detection. This well is currently pumping 10 BCPD and 9 BTPD. Cur plans for this well after its temporary use for SLD are to squeeze cement existing perforations and recomplete lower in the Pennsylvanian, depending on the results obtained on State 251 No. 3.

We will appreciate your assistance in this matter and regret that timing precludes the use of normal procedures involving a formal hearing. We believe this proposal is in keeping with the objectives of Order No. 3221-A and that correlative rights will be protected.

Should you require additional completion or procedure data, please call us.

Verv ruly yours, DOGKET MAILER Superintendent

UFB/LNH/dh cc: (2)

Docket No. 24-68

DOCKET: REGULAR HEARING - WEDNESDAY - AUGUST 14, 1968

OIL CONSERVATION COMMISSION - 9 A.M. - MORGAN HALL, STATE LAND OFFICE BUILDING SANTA FE, NEW MEXICO

ALLOWABLE: (1) Consideration of the oil allowable for September, 1968;

(2) Consideration of the allowable production of gas for September, 1968, from thirteen prorated pools in Lea, Eddy, and Roosevelt Counties, New Mexico. Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for September, 1968.

CASE 3834:

834: Application of El Paso Natural Gas Company for the suspension of certain provisions of Rules 14 (A), 15 (A), and 15 (E) of Order No. R-1670, as amended, of the General Rules and Regulations for the prorated gas pools of Northwestern New Mexico.

Applicant, in the above-styled cause, seeks suspension, for a period of one year from August 1, 1968, of those provisions of Rules 14 (A), 15 (A), and 15 (E) of the General Rules and Regulations for the prorated gas pools of Northwestern New Mexico promulgated by Order No. R-1670, as amended, that provide, respectively, for the cancellation of unproduced allowable, shutting-in of over-produced wells and redistribution of cancelled allowable.

Application of Sinclair Oil & Gas Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Upper Pennsylvanian formation in the perforated interval from approximately 9637 feet to 9682 feet in its State 251 Well No. 1 located in the SE/4 SE/4 of Section 28, Township 13 South, Range 33 East, Lazy J-Pennsylvanian Pool, Lea County, New Mexico:

CASE 3836:

CASE 3835:

: Southeastern nomenclature case calling for an order for the creation, extension, abolishment and contraction of certain pools in Lea and Chaves Counties, New Mexico:

(a) Create a new pool in Chaves County, New Mexico, classified as an oil pool for Queen production and designated as Sulimar-Queen Pool comprising the following:

> TOWNSHIP 15 SOUTH, RANGE 29 EAST, NMPM SECTION 24: NE/4 NE/4

Further, for the assignment of approximately 10,155 barrels of oil discovery allowable to the discovery well, the Jack L. McClellan Lisa Federal "C" Well No. 1 located in Unit A of said Section 24.

		BEFORE THE NEW MEXICO OIL CONSERVATION COMM Santa Fe, New Mexico August 14, 1968	IISSION
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		IN THE MATTER OF:)	
	F B D J F T D B	Application of Sinclair Oil) and Gas Company for salt water disposal,) Lea County, New Mexico.)	Case No. 3835
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	dearnley-	BEFORE: A. L. PORTER, EXAMINER	
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		TRANSCRIPT OF HEARING	
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 MR. **PORTER:** In keeping with our past performances of trying to accommutate people who appear before us, in the matter of meeting transportation schedules, we are going to change the order of the docket a little bit here, and take Case 3835.

MR. HATCH: Application of Sinclair Oil and Gas Company for salt water disposal, Lea County, New Mexico. MR. KELLY: Booker Kelly on behalf of White, Gilbert, Koch and Kelly on behalf of the Applicant. I have one with ss and ask that he be sworn.

> (Witness sworn.) (Exhibits 1 through 6 marked for identification.)

R. M. ANDERSON, called as witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLY:

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

A R. M. Anderson, Region Regulatory Engineer, Sinclair Oil and Gas Company, Midland, Texas.

Q Have you previously qualified as an expert witness before this Commission?

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Yes, I have,

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Q Would you state what Sinclair seeks by this application? A Sinclair seeks temporary authority to dispose of produced salt water on its State-Lee 245 and State-Lee 251 leases in the Lazy J-Pennsylvanian Field, Lea County, New Mexico.

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Q Now, referring to what has been marked Exhibit 1 which is a plat of the area, would you locate the proposed injection well and explain that exhibit?

A Exhibit No. 1 is a map showing all of the wells in the Lazy J-Penn Field as well as their current status. The legend on the lower left-hand portion of the exhibit reflects what the various symbols on the exhibit mean. The large, solid dot with a line through it indicates that those wells have been plugged and abandoned, no longer exist. The red triangles indicate wells that are shut in and are not being produced, and are not being carried on the current allowable schedule. The open circles with the line through them, colored green, are wells that were drilled as dry holes, did not find the reservoir. The yellow ovals with numbers in them reflect the July 1968 allowable of that well that the oval is next to. This, of course, is an indication of those wells' productivities. The proposed salt water disposal well is in the approximate center of the exhibit. It is circled and is identified with a large lettered identification. The well is in the southeast quarter of the southeast quarter of Section 28, Township 13 South, Range 33 East. It is Sinclair's 251, Well No. 1.

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9 Now, what wells, what producing wells have their water injected into the proposed salt water disposal well?

A There are three producing wells whose water would be disposed of into the proposed injection well. That is the Well No. 5 in the northeast quarter of Section 28; well No. 3 which is the west offset to the proposed injection well, and well No. 3 which is the south offset to the proposed injection we.

Q Could you explain to the Commission what has necessitated this application?

A This application was necessitated by the re-completion of Well No. 5, Sinclair's 245, Well No. 5, which was deepened to a deeper zone in this same Lazy J-Penn Field and completed making some two hundred barrels, two to three hundred barrels of water a day. So the pits that we had in operation on these leases were barely adequate to take care of the water production before the re-completion of this **well**. Our water production ran 30 to 35 barrels a day. The two pits, or the pits handled that water adequately. However, this additional water is too much for the existing pits, something must be done with it and we are proposing to temporarily use this well, pending a field-wide salt water disposal system that is to be built by Rice Engineering Company.

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Q When does Rice plan to have their disposal system in effect?

A At the present time, Rice is in the process of making an engineering study of the area, designing their system. We certainly hope that their system would be in by the first of the year, due to the No Pit Order, effective date at that time, so I would hope that Rice would be able to expedite and get their system in. However, it's possible that they may be delayed after that time.

Q So at any rate, this injection well will be used for salt water disposal only until Rice has their own system in, is that right?

A That is correct.

Q What are your plans for that well after Rice's system is in?

A Well, we propose to use this well until Rice's system is completed. We feel that at the most we would need the well for about one year, so that would be the most pessimistic picture. We're asking for temporary permission for one year. Whenever we are connected to the Rice System we will immediately work over this well by squeezing the present perforations and deepening the well some 75 or 100 feet to test the lower zone that is productive in some wells in this field. However, that workover is contingent upon a successful workover on Well No. 3, the west offset. Well No. 3, we feel, is in the most favorable position to complete in the lower zone and if it's successful like Well No. 5, to the north was, why then we will do the same thing to this well 251, No. 1.

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Q Now, referring to what has been marked Exhibit No. 2, the structure map, will you explain that to the Commission? A Exhibit No. 2 is a structure map on the top of the lower zone and the top of the lower zone is, oh, within 15 or 20 feet or 30 feet, somewhere in that vicinity, within that many feet of the bottom of the upper zone. The lower zone is very close to the upper zone geologically, so this map is reflective of the structure of both the upper and lower zones. The structure map reflects that the high is in the north part of the map and that this Lazy J-Penn is not associated with the high, but rather with the south flank of a high. It is a porosity and permeability trap of lenticular nature that developed on the south flank of a high that exists on up to the north.

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Q Referring to what has been marked as Exhibit No. 3, which is the application for salt water disposal, you show on there the anticipated daily volume of twelve to fourteen hundred, actually that's quite a bit higher than what will actually be injected, is that right?

A Yes, sir. We thought we would use what we considered the maximum that we might expect. The well, the No. 5 well that we deepened came in making 240 barrels of water with 90 barrels of oil on one test and several days later it tested 100 barrels of oil with only 200 barrels of water. So if the other wells that we are going to recomplete in this manner come in with a similar water-oil ratio, why, we'll have six or seven or eight hundred barrels a day of water to dispose of. Currently, we have about 250 barrels of water per day that we initially will dispose of, the way the lease is operating right now.

Q And all of this water will be reinjected into the same zone?

A Yes, it will be put back in the same zone it came from.

Q Referring to what has been marked as Exhibit No. 4 which is your diagramatic sketch, would you explain the proposed installation?

Exhibit 4 is a diagramatic sketch; it shows the A cement tops and casing that is in the subject well and it shows the existing perforations which we propose to use for the disposal zone. The only difference is that on the two inch tubing we will run a retrievable packer and set it within a few feet of the top of the perforation. We will fill the annulus with corrosion inhibited fluid. We will put a pressure gauge on the surface. The only thing we do not want to do in this instance is use plastic-coated tubing. This would be an unusual expense and we feel it would not be justified in a temporary installation, and should the tubing spring a leak for any reason, we would be able to immediately detect it with the pressure gauge and the annulus being filled with corrosion inhibited fluid, we would know it immediately.

Q What would be the cost of plastic-coated tubing? A It runs about a dollar and a half a foot to plastic coat; for this installation, it would be somewhere in the vicinity of \$15,000.00 just to coat that tubing.

Q Do you plan to inspect the tubing that is in the

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well now and replace any sections that are in any way damaged or show corrosive effects?

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A Oh, yes, we would pull the rods and the pump from the well and the tubing and inspect the tubing and discard any joints that were not in very good shape and rerun the tubing then with a packer on the end of it to set in the bottom, so the tubing would be inspected. We would be sure that it would be in good condition and we would pressure test the tubing to make sure there's no flaws in it or leaks that are hard to detect.

Q In your opinion, will the proposed installation shown on Exhibit 4 protect any other zones or any fresh water zones from this salt water?

A Yes, in my opinion the water, the salt water could go into no other formations than the upper zone of the Lazy J-Penn Field.

Q Now, referring to what has been marked Exhibit No. 5, will you discuss that exhibit?

A Exhibit No. 5 is a tabulation of all of the producing wells within a mile of the proposed salt water disposal well and those wells are the -- the first well is the proposed salt water disposal well, the first well listed on Exhibit 5; the next three are the three Sinclair wells that I have been talking about this morning, and the last well is Moss's State C Vell No. 2 and it is located to the southeast of the proposed disposal well. An inspection of the subsea intervals that those wells are completed in reflect that the proposed disposal well's perforations are deeper than any of the other wells producing within a mile of the well, with the exception of Sinclair's No. 5 well which is the one we recently deepened to the lower zone and I do not believe that the upper and lower zone are in natural communication in this area, so I don't believe the No. 5 well could possibly be affected by the injection.

Q Exhibit No. 6 is the log of the proposed injection well, is that right?

A Yes, sir, and I have indicated on the bottom of the log the perforated intervals that we are going to inject into.

Q Were Exhibits 1 through 6 prepared by you or under your direction?

A Yes, they were.

MR. KELLY: At this time, I move the introduction of Applicant's Exhibits 1 through 6.

MR. PORTER: If no objections, the exhibits will be admitted.

MR. KELLY: That's all we have on direct.

MR. PORTER: Does anyone have a question of Mr. Anderson? Mr. Nutter.

CRCSS EXAMINATION

BY MR. NUTTER:

Q On your exhibit No. 5, you mentioned that all the Sinclair wells are completed in the upper zone with the exception of your No. 5. Is the Moss well completed in the upper zone also?

A Yes, sir.

Q So the disposal will be of a temporary nature and it will be into a zone that will be abandoned in so far as Sinclair is concerned. Do you know whether Mr. Moss is considering recompletion of his well?

A No, sir, I don't.

Q How far is your well from the Moss well?

A Approximately a half a mile.

Q And what is the structural difference between the perforated interval here and the perforated interval of Mr. Moss's well?

A Exhibit 5 reflects that the top of our perforated

interval is three feet lower than the top of Moss's.

Ω So essentially you are injecting into the same zone and at the same structural position that his well is completed?

Essentially, yes. Α

Now, with reference to your diagramatic sketch, Q you have intermediate casing set at 3999, and the top of the cement on the long string is at 7750. Are there any producing intervals in this area between 3999 and 7750? Α

No, sir.

MR. NUTTER: I believe that's all, thank you.

CROSS EXAMINATION

BY MR. PORTER:

Mr. Anderson, have you had any contacts or Q. communications from Mr. Moss?

No, sir. Α

As far as you know he hasn't objected to your Q application?

A That's correct, we have not had any communication with him at all.

MR. PORTER: Does anyone else have a question of Mr. Anderson? Mr. Utz.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Anderson, you mentioned that plastic-coated Q Is that right?

Yes.

А

Q That's not the total cost?

A No, sir. Mr. Utz, I could be mistaken about that. It was my understanding that that would be the cost to plastic-coat the tubing that we have out there, or in lieu of using the tubing that we already have on hand, it would cost a dollar and a half a foot, either interpretation, I guess, I could make on the information I received.

Q In other words, it might be something less than a dollar and a half a foot, the difference between the two types of tubing?

A Regular tubing runs about 75¢ a foot so it could be half of that. However, my informant could have been thinking, "Well, we already have the string on hand and if we were to use plastic-coating, we might have to buy a whole new string to use". We're faced with another situation; by the time we are through using this well as a disposal well on a temporary basis, we will have passed the January 1 deadline and any other salt water disposal systems that we might need out in New Mexico will have already been put in so we would end up with \$15,000.00 worth of plastic-coated tubing that we would have little or no use for and, of course, trying to reuse it is a dangerous situation, too. By the time you pull it and transport it and store it and rerun it, you damage the coating, you could damage the coating, so that's why we're very reluctant to go to that expense.

Q You want to use your old tubing?

A Yes, sir, after inspecting it and pressure testing it.

MR. UTZ: Thank you very much.

MR. PORTER: Anyone else have a question? The witness may be excused.

(Witness excused.)

MR. PORTER: Anyone have any statement to make in connection with this case? The commission will take the case under advisement.

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MARKED 2 OFFERED AND ADMITTED STATE OF NEW MEXICO)) ss COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my hand and seal this 28th day of August, 1968.

Ada Dearnley

Form C-108 Révised I-1-65

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	CONSERVATION	

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR			AODRESS		
SINCLAIR OIL & CAS	COMPANY	T WELL NO.	P. O. Box	1470, Midland,	Texas 79701
State 251		1	Lazy J	Penn	Lea
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32 & 24# J-55	8-5/8"	3999	1500	1880'	temp. survey
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 (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 Sazia 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 731.

90



COMPLETION INTERVALS OF	
PRODUCING WELLS WITHIN ONE MILE	
SINCLAIR'S PROPOSED SWD WELL	

Oper., Lse. & Well Nc.	Current <u>Allowable</u>	Elevation	Sub Sea Perts
Sinclair State 251 #1	11	4237	-5400 to -5445
Sinclair State 251 #3	9	4255	-5341 to -5453
Sinclair State 245 #3	9	4244	-5340 to -5453
Sinclair State 245 #5	_100	4255	-54]3 to -5530*
Moss State "C" #2	27	4241	-5397 to -5450

*Completed in Lower Zone

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yor. 3 3835

Sinclair Oil & Gas Co. 3835 Exhibit No.

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