STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

6 June 1984

EXAMINER HEARING

IN THE MATTER OF

Application of Coastal Oil & Gas Corporation for salt water disposal, Lea County, New Mexico. CASE 8210

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:
W. Perry Pearce
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State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:
James G. Bruce
Attorney at Law
HINKLE LAW FIRM
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A P P E A R A N C E S

For Yates Petroleum: Chad Dickerson
Attorney at Law
LOSEE, CARSON & DICKERSON
Post Office Drawer 239
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MR. STAMETS: We'll call next Case 8210.

MR. PEARCE: That case is on the application of Coastal Oil and Gas Corporation for salt water disposal, Lea County, New Mexico.

MR. BRUCE: Mr. Examiner, my name is Jim Bruce, representing Coastal Oil and Gas.

I have two witnesses to be sworn, one of whom will be Mr. Luther again.

MR. DICKERSON: Mr. Examiner, I'm Chad Dickerson from Artesia, New Mexico, and I represent Yates Petroleum Corporation in this matter.

MR. PEARCE: Mr. Examiner, I would ask the record to reflect that Mr. Luther continues under oath and is qualified, and I would ask other witnesses in this proceeding to rise at this time, please.

(Witnesses sworn.)

MR. BRUCE: Before we begin, Mr. Stamets, Mr. Dickerson brought up one question before the hearing and I really don't know the answer, so we'll get it out in the open.

We filed this application for hearing but Coastal did not file Form C-108 with the local

OCD office.

I was under the impression that it was not necessary unless it was -- administrative approval was sought. If it is necessary, we'll go ahead and file all the necessary papers but we would like to present our evidence at this time.

MR. STAMETS: Do we have Form C-108 here? We have all the information from Form C-108 here?

I won't hear the case if I don't have that.

MR. BRUCE: You won't?

MR. STAMETS: No.

MR. BRUCE: Okay.

MR. STAMETS: Because I have to consider all of that information at this hearing.

MR. BRUCE: Okay. Can we, instead of dismissing the case, could we just continue it until the proper forms are filed?

MR. STAMETS: Mr. Dickerson, would you have any great problem with that?

MR. DICKERSON: I'd love to win a case this easy, Mr. Stamets.

I have no problem.

MR. STAMETS: Okay. How -- Form C-108 is required to be how many days before --

MR. DICKERSON: Ten days.

MR. STAMETS: Ten days.

MR. PEARCE: This case could be continued until the hearing scheduled for the 20th.

MR. STAMETS: Uh-huh.

MR. PEARCE: If the 108 can be prepared and submitted in the next four or five days, whatever that would work out to, four days, or we can continue the case until the next hearing, which is July the 11th.

MR. STAMETS: Why don't we try for the closer one and then --

MR. BRUCE: The 20th.

MR. STAMETS: -- if that doesn't work out, let Mr. Dickerson know that it will be continued until the July hearing.

MR. BRUCE: All right.

MR. STAMETS: All right, we will then continue this case until the 20th.

MR. BRUCE: All right, sir.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8210 heard by me on 6/6 1984.

Richard A. Stamets Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

20 June 1984

EXAMINER HEARING

IN THE MATTER OF

Application of Coastal Oil & Gas Corporation for salt water disposal, Lea County, New Mexico.	CASE 8210

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	W. Perry Pearce Attorney at Law Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501

For the Applicant:

MR. STOGNER: We'll call next Case Number 8210.

MR. PEARCE: That case is on the application of Coastal Oil and Gas Corporation for salt water disposal, Lea County, New Mexico.

Mr. Examiner, that case is to be continued until July the 11th, 1984.

MR. STOGNER: Case Number 8210 will be so continued until the Examiner Hearing scheduled for July the 11th, 1984, and that concludes the hearing today and we are hereby adjourned.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8210, heard by me on June 20 19 84.

Michael E. Stogner, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

11 July 1984

EXAMINER HEARING

IN THE MATTER OF

Application of Coastal Oil & Gas Corporation for salt water disposal, Lea County, New Mexico. CASE 8210

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:

For the Applicant: James G. Bruce
Attorney at Law
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A P P E A R A N C E S

For Yates Petroleum Corp.: Chad Dickerson
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I N D E X

E X H I B I T S

E X H I B I T S

MR. STAMETS: We'll call next Case 8210, which was continued from the June 20th Examiner Hearing, application of Coastal Oil and Gas Corporation for salt water disposal, Lea County, New Mexico.

MR. BRUCE: Mr. Examiner, my name is Jim Bruce from the Hinkle Law Firm in Santa Fe.

I have two witnesses, one of whom is Mr. Luther; one new witness to be sworn.

MR. STAMETS: Okay, and other appearances in this case?

MR. DICKERSON: Mr. Examiner, my name is Chad Dickerson of Artesia, New Mexico, appearing on behalf of Yates Petroleum Corporation.

We have one witness.

MR. STAMETS: Any other appearances?

I'd like to have all witnesses who haven't been sworn stand and be sworn.

(Witnesses sworn.)

MR. BRUCE: Let the record show that Mr. Luther has been previously qualified as an expert witness.

MR. STAMETS: The record will show Mr. Bruce is sworn and qualified.

MR. BRUCE: Mr. Bruce? You meant Luther.

MR. STAMETS: Oh, Luther, I'm sorry, Jim. I was writing your name at that time.

H. C. LUTHER,

being called as a witness and having been previously sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Luther, are you familiar with the geological aspects of Case 8210?

A Yes, sir, I am.

Q And in connection with that would you please refer to Exhibit Number One --

A This --

Q -- and discuss that?

A This is a structure map on what we call a P-3 porosity zone in the San Andres formation that occurs around 5400 feet. This series of porosity zones occur about 400 feet below the top of the San Andres formation in the east Tolk Field of New Mexico.

This formation has been tested and on 1-27 we abandoned the well that's located in the northwest quarter of Section 27. We abandoned the well.

Coastal perforated the San Andres and

made nothing but water. We cored the 26-3 located in the southeast quarter of Section 26. There was no commercial oil and we ran a drill stem test in this 34 No. 1 in the northeast quater of Section 34 and we recovered nothing but formation water.

This structure map is only -- it relates to this porosity zone, which shows a nose, a west dipping nose. There is no San Andres production in this area. The nearest San Andres production that we can find is thirteen miles in the Square Lake Field of Eddy County, New Mexico.

Q Okay. Coastal has been producing in the Pennsylvanian formation in this area since 1968, has it not?

A They have.

Q And what are Coastal's plans with respect to future drilling in this field?

A At present, it's not shown in this map, we have just finished drilling. There had been no drilling in this filed until about nine months ago.

Since this field was drilled in the late sixties they plugged out most of the well and there was three wells producing, the 326, the 26 -- 1-26, and then in Section 23 the 23 -- 1 State 23.

Now these three wells continue to produce up to the time that we got interested in this field and they made -- I think the total of three wells makes about 41 barrels of oil and the engineer can tell you how much water. I don't know. I like to deal mostly in oil, being a geolo-

gist. And then the unit came in and we drilled these wells. We drilled the 22 No. 2 in the southeast quarter of Section 22. It produces oil out of the Bough C.

We have drilled the 26 No. 4 in the northwest quarter of Section 26 in the last nine months. It produces out of the A and B.

We have just completed a well in the northeast quarter of Section 27, which is the 3-27 State. That's pumping right now out of the Bough C; was pumping 120 barrels of oil and so much water, I can't remember numbers exactly, and the -- we have just completed the 23 No. 2 in the southeast quarter of the southwest quarter and we have just set pipe and getting ready to perforate the A zone in that, so we have drilled five wells recently in this field and have one, two, three, four, five, yeah, five wells in this field, and they are all producing.

Q And Exhibit One also again shows Coastal's acreage outlined --

A In yellow, that is correct.

Q And furthermore, Coastal does have an overriding royalty interest in the west half of Section 27, does it not?

A That is true. Gulf killed one and we have -- we farmed that out and we do have an overriding royalty in that.

Q All right. Without going into great detail on Exhibits Two and Three, just briefly, what do they

show?

A Exhibit Two is a structural cross section that is a north/south cross section. It runs from the salt water disposal well, the State 22 No. 1, down through the 27 No. 1, the 27 No. 2, and the 34 No. 1.

This -- this exhibit justs shows the porosity zone and how it correlates and ties in.

And the Exhibit Number Three is an east/west cross section that runs from the Gulf wells over to the dry hole that you find in Section 26 that we drilled many years ago, the the 26 No. 2, and it also shows the relationship of the porosity zone within that field.

Q It shows the continuous porosity in the--

A Yes, that is right --

Q -- San Andres, is that correct?

A Continuous porosity zone in the San Andres.

Q And in your opinion is the San Andres zone the only formation in this area with enough room to accept all of the water that --

A Geologically we feel like with our activity in this field and with the amount of water that we will be producing, that the San Andres, in looking up and down the log from top to bottom, is the only place that has enough porosity to produce the amount of water that we anticipate producing.

As you know, the Tolk and the Baum Field

are high water producers, but they also make a lot of oil, so we have to live with the water whether we like it or not.

Q And Coastal has disposed until recently of salt water in the 22-2.

A 2. They -- they are transporting water now. The 22-1 in the north -- northeast quarter of the southeast quarter has been a disposal well and that was the -- the original disposal was a lower porosity zone in the C that was wet, and that's the only well that I am acquainted with in this area that we -- as I say, the engineer might know of another one, but that's the only one I know geologically that we dispose of water.

Q And that disposed water has not showed up in production in the 22-2 Well, has it?

A No, we are -- we are producing the 22 No. 2, and I think we made a couple of barrels of water out of that, is about all we make.

MR. STAMETS: Let me just confirm that the Well No. 1 in the northeast of the southeast of Section 22, 14, 32 has been a salt water disposal well in the Bough C formation.

A Yeah, there's a porosity zone below the pay zone that was wet and as I -- as far as the records, I can go back and look at Coastal records, they put the water down there. I don't know when they quit. Like I say, the next witness for Coastal will tell you more about that in detail.

MR. STAMETS: Okay.

Q Where is the nearest salt water injection well in this area?

A As you'll notice on this map, to the south Phillips has numerous wells down there. That was originally called the Tolk Wolfcamp Field before they knew that, or we decided, geologists did, somebody, that the Bough B, Bough C, and Bough A was Pennsylvanian, and it has remained such.

This well -- these wells down here, if you will -- which I brought last time because I was talking about the Tolk, this steep dip to the south, steep dip to the west, I mean to the east and then rollover to the west, and we don't have -- see too much rollover to the north, these wells down here that Phillips produces out of, produce out of what we call the Bough A, which only produces on the flank of Tolk.

They dispose of water, as Phillips told us, into the Bough B and Bough C. Now I have gone through their scout tickets and all the Bough B and Bough C wells down there were so low they all made water, so I guess they had no effect, you know, and so that's where they've been putting their water, in the Bough B, Bough C, which is wet and does not produce down there. It produces out of the Bough A.

Q All right.

A Which is the top member, A, B, C, it's

the top member, about 50 to 75 feet above the B.

Q And in your opinion will disposing of the produced salt water into the San Andres formation protect the Pennsylvanian producing wells better than if the water is disposed into the Pennsylvanian formation?

A No, since you have a lot of water coming out of the Pennslyvanian to begin with or since the year the wells were drilled, I don't believe that putting in a lot more water down there is going to help our new drilling. It will just increase our water production.

Q And are there any faults in this area that may connect a fresh water zone to the salt water zone?

A There is a postulated deep fault that comes down from 16, 20, 29, it comes down through there, that we do not feel that those are viable Pennsylvanian. We can't -- it's a steep -- it's a cluster there, if I had the fault map I could show you in the Pennsylvanian. We feel like there's a deep fault there but we do not feel like it goes up in the Pennsylvanian. That is probably Devonian or somewhere in there. Mississippian, maybe.

Q And were Exhibits One through Three prepared by you or under your direction?

A That is correct.

Q And will, in your opinion, the granting of this application be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A I believe that we've got to put it and this is the best place I know to put it and I believe it would help.

MR. BRUCE: I move the admission of Exhibits One through Three at this time.

MR. STAMETS: These exhibits will be admitted.

MR. BRUCE: And I have no further --

MR. STAMETS: Are there questions of the witness?

CROSS EXAMINATION

BY MR. DICKERSON:

Q Mr. Luther, what is the proposed injection interval exactly?

A On the cross section, let me look here, let me get the cross section out here.

The proposed interval will be from about -- approximately it would be from about 5170 down to 5350. I don't know if the engineers, how many of those four zones they're going to take in.

It's the red that's denoted on this display right here.

Q And that's the San Andres formation?

A That is the -- may I use this --

MR. BRUCE: Yeah, sure.

A -- display right here?

The, this is called the Slaughter zone and it's lying in all across there.

This is the top of the San Andres formation. This porosity here is roughly the old Slaughter zone. It goes all the way across New Mexico, that produces across there, and it's -- it's just a --

Q From your cross section there can you tell us the top and the bottom of the San Andres formation?

A I would say the Yeso right here would be roughly the base of the San Andres.

Q And what's the top of it?

A The top is about 4000 feet.

MR. STAMETS: The top's your dark blue line and the bottom is --

A Dark blue line and this the top of the Yeso as we -- as we call it.

Q And what are the approximate depths?

A Well, I can't -- I'm sorry, I'm blind. I'm hard of hearing, but it looks like --

Q 3100 to 5100 feet.

A You mean the producing intervals? I mean the intervals we want to inject water?

Q No, just the top to the --

A Oh.

Q -- base of the San Andres.

A The top of the San Andres is about 4000 feet and the base is about 5830 or 40, somewhere in there.

Q Mr. Luther, Coastal has other wells within the half mile circle of review, do you not?

A Pardon?

Q Coastal has other wells, other than the injection wells within the half mile circle of review?

A Yes, sir.

Q Would you tell us a little about the casing and cementing program of those wells, as far as --

A I would rather have the engineer do that because he has all that. I -- I do not -- I haven't looked into it but the engineer has that will testify after me has all of that information.

Q Okay.

A The casing, where the cement, and all this stuff.

We set, I can tell you roughly, we set out pipe in the top of the San Andres. We go down and we set our production string and where the cement comes up to I am not -- I don't know, because I turn that over to the Production Department once -- once we've (not understood) it I turn it over and --

Q Okay, would you tell once more very briefly what your pick for the top and the bottom of the San Andres formation is?

A Roughly what we are picking is around

4020 to 30 and the base is around 5800.

MR. DICKERSON: No further questions.

MR. STAMETS: Any other questions of the witness? He may be excused.

DAVID CAMPBELL,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. BRUCE:

Q Would you please state your name, address, occupation and employer?

A My name is David Campbell. I live in 4324 Harvard, Midland, Texas. I am a petroleum engineer employed by Coastal Oil and Gas Corporation.

Q And have you previously testified before the New Mexico OCD?

A No, I have not.

Q Would you please give a brief summary of your educational and work experience?

A Okay. I graduated from Texas Tech University in August of 1969 with a degree in civil engineering.

I was employed by Texaco, Incorporated.

For the first four and a half years I

worked for them I was employed as a civil engineer and was assigned to the construction of production surface facilities, waterflood plants, pipelines, and I was then transferred into the petroleum engineering department; was moved to the field and was given the responsibility of monitoring waterflood operations, prepared workover recommendations, evaluating workovers, and completing wells.

I then spent a year and a half in the Midland Division Office as a staff reservoir engineer and the main responsibility I had at that time was monitoring waterflood performance and evaluating joint interest proposals.

I was employed by Coastal in August of 1977. Since that time I have been responsible for all aspects of proposing wells, drilling, completing, waterflood operations, reservoir calculations, and just in general everything combined in operating an oil well.

Q Thank you. Are you familiar with Case 8210 and the engineering matters involved in the case?

A Yes, I am.

MR. BRUCE: Mr. Examiner, is the witness considered qualified?

MR. STAMETS: He is.

Q Mr. Campbell, would you briefly state more precisely what Coastal Oil and Gas seeks by its application?

A Okay. In this application Coastal is

asking permission to dispose of the water produced in the Tolk Pennsylvanian Field from those wells that Coastal operates into the San Andres formation at a depth of from approximately 5100 to 5500 feet.

We propose to use two wells, the State 22 Well No. 1, which is located in the northeast of the southeast of Section 22, and the State 27 Well No. 1, which is located in the southeast of the northeast of Section 27.

The State 22 No. 1 has served as a disposal well into the Penn formation since January of 1969 and the State 27 No. 1 is currently a well that was attempted, we attempted a completion in the San Andres in this zone in this well and it was nonproductive, and this would have been shut-in awaiting outcome on this hearing for, you know, proposed use.

MR. BRUCE: At this time, Mr. Examiner, I'd just like to state that the 22 No. 1 Well was authorized as a salt water disposal well under Order No. R-3623.

Q Mr. Campbell, would you please refer to Exhibit Number Four and discuss its contents?

A Okay. Exhibit Number Four is a plat of the Tolk Penn Field area, centered on Section 20, 10, 27 in Township 14 South, 32 East, and on this plat we have showed the half mile radius around the two proposed disposal wells and this map shows all offsetting operators of record at the first of June.

Q And are there any producing wells within the one-half mile radius of each well?

A Yes, there are. There are two producing wells within the half mile radius of Section -- of the State 23 No. 1 and four producing wells in the half mile radius around Section -- Well No. 27-1.

Q And these are all Coastal Oil and Gas wells, are they not?

A Yes, they are.

Q Would you please discuss the history of each proposed disposal well, the current status of each well, and the proposed completion configuration?

A Okay. Exhibit Number Five is a wellbore schematic showing the current condition of our State 22 Well NO. 1, showing the casing depths, and the cementing program that was followed by -- when the well was completed, and the calculated top of cement or the actual top of cement that was pumped into the well.

This well right now is currently shut-in and I think on January the 14th of this year, we had a tubing problem and pulled the tubing out of the well, found the tubing was plugged off with the plastic lining in the tubing had plugged the tubing off.

At that time we had also been talking to the geologist about the possibility of trying another disposal zone and we decided to leave the well shut-in and ask for a different disposal zone.

Exhibit Number Six is a wellbore schematic showing the current condition of our well, State 27 Well No. 1, showing the casing depths and calculated top of the cement. This well has a TD of 9965. When we requested permission to abandon the Pennsylvanian pay and come back and attempt the San Andres completion, we received approval to do that and plugs were spotted with the approval of the OCD office in Hobbs.

This well is currently shut-in.

Q And Exhibit Seven?

A Exhibit Number Seven is a wellbore schematic of the State 22 Well No. 1 as we propose to have the well set up for injection.

The -- we anticipate setting a cast iron bridge plug above the open Penn perforations at approximately 9750 feet, about 50 foot of cement on top of it.

The cement plugs shown in this -- on this sketch are anticipated. We have not requested approval for, you know, to spot these plugs, so I don't know exactly where they're going to be. I based the plugs, the setting depths, on the ones that were approved for the State 27 Well No. 1.

It shows the proposed San Andres perforations, the top set of perforations, or the top perforation is at 5100 feet and the bottom will be at 5367.

Exhibit Number Seven-A is a section of the sidewall neutron porosity log from the State 22 well.

This log shows the porosity sections that

we are requesting permission to inject into. The top set of perforations is from 5100 to 5205 and the other set is from 5340 to 5367.

Exhibit Number Eight is a wellbore schematic of the State 27 No. 1, showing the proposed injection zone. This well, as previously stated, was -- was completed or plugged back to the San Andres and at that time we set a cement retainer. We shot -- squeezed perforations because the well did not have cement across the San Andres, and show perforations at 5325 feet, set a retainer at 5290 and squeezed with 200 sacks of Class C.

We ran a temperature survey after that work was done and the temperature survey showed the top of cement was at approximately 4200 feet.

Exhibit Number Eight-A is a section of the sidewall neutron porosity log on the State 27 Well No. 1 showing the porosity zones and the proposed perforations into this wellbore.

These perforations are from 5100 to 5130, 5205 to 5240, and 5265 to 5285.

Q Thank you. What low injection pressure does Coastal propose?

A We anticipate that we would be able to inject the water that we anticipate, the volume that we anticipate at a bottom pressure of about 700 pounds.

Q And what kind of fluid is to be disposed of and what are its sources?

A Okay. The proposed injection fluid will be strictly the produced water from the Pennsylvanian pay in the wells that Coastal operates in the Atoka-Penn Field.

Q And it will be only from Coastal wells, is that correct?

A Yes, that's correct.

Q And what are the anticipated injection volumes?

A We are currently producing approximately 1000 barrels per day out of the wells that we operate and with the wells that we anticipate drilling, we're looking at a maximum anticipated volume of approximately 2200 barrels of water per day.

Q And by what method have you been disposing of produced water?

A Okay. Prior to January we were disposing into the Pennsylvanian zone in the State 22 No. 1.

After that tubing failure we shut the well in and we have been trucking the water from this field and transporting it to an authorized disposal system.

Q And where is the fresh water encountered in this area?

A In this area the fresh water, the only fresh water that we know about is the -- from the Ogallala formation and in this area it's approximately from 135 feet below the surface to a maximum depth of approximately 190 feet.

We know of two fresh water well locations. One is in the northeast quarter of the southeast quarter of Section 22, approximately 200 yards from the State 22 Well No. 1.

The other one is in the southeast quarter of the southwest quarter of Section 35.

Q And water analyses for these two wells have been provided in the Form C-108, is that correct?

A That's correct.

Q Have you had the Pennsylvanian water in this area and the San Andres water analyzed?

A Yes, sir, we have. Exhibit Number Nine is a water analysis showing the water recovered from the State 26 Well No. 3. We use that as an example.

This was a -- is shown as Sample No. 1 on this exhibit, and exhibit -- or Sample No. 2 on this exhibit is the recovered water. We ran tubing in the State 27 No. 1 the last day of May and swabbed produced -- or this San Andres formation water up and had it analyzed.

Q And there is no incompatibility between the water in the two zones?

A No, sir, there is not.

Q And --

A They -- the only problem that they saw on there was a mild scaling tendency which is not any problem at all to handle.

Q And the San Andres water does have a much

higher mineral content than the Pennsylvanian water, is that correct?

A Yes, it does. The total dissolved solids for the Penn is approximately 58,000 parts per million and the San Andres is approximately 245,000 parts.

Q Does Coastal Oil and Gas propose a monitoring program in wells other than the two salt water disposal wells?

A Yes. We anticipate, we have three wells that are located somewhat between the two proposed disposal wells, our State 22 Well No. 1, the State 26 Well No. 1, and the State 23 Well No. 1, and we propose to closely monitor the annulus between the 5-1/2 and 8-5/8ths casings in these wells for any increase in pressure and we anticipate -- we plan shoot flood levels so that we immediately see any increase in the static fluid level in those.

Q And do you believe that any adverse effects would show up in these three wells long before other producers are affected, is that correct?

A That is correct. The closest well to either of the disposal wells is our State 22 Well No. 2, and it's approximately 1100 feet away.

Q And, of course, Coastal does not wish to put its own wells at risk.

A That is correct.

Q Have you estimated the total volume of water which will be disposed of by Coastal Oil and Gas?

A Right. We have, based on what we're producing now and what we anticipate to make with the new drilling, and we expect the field to last approximately ten more years, we anticipate a maximum injection water volume of 8-million barrels.

Q In short, Coastal seeks to protect its Pennsylvanian production and dispose of water, salt water as cheaply as possible.

A That is correct.

Q Will Coastal Oil and Gas comply with OCD regulations regarding the notice, testing, monitoring, and record keeping?

A Yes, we will.

Q And in your opinion will the granting of this application be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, it will.

Q Were Exhibits Four through Nine prepared by you or under your direction?

A Yes, Exhibits Four through Eight were. Exhibit Number Nine was prepared by an independent laboratory in Monahans, Texas.

MR. BRUCE: At this time I move the admission of Exhibits Four through Nine.

MR. STAMETS: These exhibits will be admitted.

MR. BRUCE: I have nothing further of this witness.

MR. STAMETS: Are there questions of the witness?

CROSS EXAMINATION

BY MR. DICKERSON:

Q Mr. Campbell, are all the wells on Exhibit Number Four within the half mile circle of your proposed injection wells Coastal wells?

A Yes, they are.

Q Would you briefly describe for the Examiner the casing and cementing program which exists for the proposed injection interval in all those wells?

A Okay. As an example, Exhibit Number Five, which shows the State 22 Well No. 1, the detailed wellbore information on all these wells is -- was included in the filing of the C-108, but in general they were all -- had 13-3/8ths casing set at approximately 400 feet and cement was circulated to the surface.

The intermediate casing was set at approximately a 4100-foot depth, generally right in the top of the San Andres, and in some wells it was cemented back to the surface and in some wells it didn't quite get back up.

And the production string was set at an average depth of, say, 10,000 feet.

A general program was approximately 200

sacks of cement and with the conditions in that field it came out for an average, the top of cement was approximately 8000 feet.

Q Would it be fair to say that all the Coastal wells within that half mile radius of review are open hole in the proposed injection interval?

A That is correct.

Q Are you familiar with the Yates Petroleum Corporation wells in the general vicinity by outside the half mile radius of your injection wells?

A The only well that I know anything about at all is that Yates has a well in the southwest quarter of 22. I assume that they have some back further west but I'm not familiar with any of the performance or -- or completion of any of these wells.

Q Do you recognize, Mr. Campbell, that when you inject into an interval where there is no cement behind the pipe of the offsetting wells that you expose those wells to a risk of corrosion and possible collapse of that casing?

A It is my opinion that if you do that, the Penn water in this particular instance where we're proposing to inject Penn water, the Penn water is much less corrosive to the wellbore, or to the casing than the normal San Andres formation water is.

I don't think that it would cause any problems if the -- the only collapse problem would be if you had the wellbore shut-in, and I don't anticipate that --

that the volume of water we propose to inject, and combine that with the vast area that -- of the porosity in the San Andres zone that we've proposed, that we would cause any kind of problems.

Q You don't think, do you, that the distribution of the water that you inject into these proposed wells is uniform in a circular pattern around the wells necessarily?

A Yes, I believe it would be. It almost, with the volume of reservoir in that area, you'd almost have to assume that it would go regular.

Q Why is that?

A It's -- there's not any geological reason that I know about why it wouldn't -- would tend to go in any one direction.

Q Do you have any experience that you could point to to support that opinion?

A Not directly, no.

Q Are there any wells within the half mile areas of review or within the 2-mile area of study that have cement behind the pipe in this area?

A I did not examine that except in the half mile area of review.

Q So at least to your knowledge, all the wells within two miles of your proposed injection wells do not have cement behind the pipe.

A I don't have any knowledge of anything

except the ones that I looked at.

MR. DICKERSON: No further questions.

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Campbell, is the San Andres interval already water wet?

A Yes, sir, I would assume so.

Q So whatever you put into it, whatever you add to it, is going to cause that San Andres water to begin to move.

A Yes, sir.

Q And some of it, we presume, will move past these wells?

A Yes, sir. over a period of time it would.

Q And is there any way with the wellbore being open the way it is that we can be assured that the injected water is going to stay in the interval that you put it in, or that the San Andres water won't migrate to other intervals?

A No, sir, there's no way, but it's all open now. I can't see how that just the fact that we're moving water around would cause any more problems than we've already got.

Q We do have water under, I presume, static conditions in the San Andres.

A Yes, sir.

Q And you're adding water to it would change that to dynamic conditions.

A Yes, sir, it would. I just -- it's hard for me to, with the volume that we have, just a minute, let me look the number up.

We -- I did some rough calculations and we are, if this request is granted, we propose to equally divide the water between the two wells, and so I assumed 4-million barrels of water would be injected into each well over a period of ten years.

If we assumed radial flow based on the 6 percent porosity and the least amount of pay we had that we were going to open up was 110 feet in the 27 No. 1, the volume before -- if we assumed radial flow and displacing all the San Andres out of that, it would take approximately sixty years for the first Penn water injected into the well to get outside that half mile radius, and because of that, I think the dynamic conditions would not change drastically enough in any of the offsetting wells to cause any type of pressure build-up or, you know, the casing collapse problems relating to that.

Q Okay, the rates that you quoted earlier of 1000 barrels of water a day, you said 2200 barrels of water a day, that could mean that each of those wells might have as much as 36-million barrels of water instead of 4-million barrels.

A Well, I don't anticipate the 2000 barrels a day of water to last more than a period of a year.

Q Okay, so you're looking at 1000 barrels a day now.

A Yes, sir.

Q Okay, and that's going to convert into a minimum of, say, 19-million per well, so your sixty years would be reduced by a factor of five, more or less.

But you're still going to have San Andres water moving by these wells for that period of time.

A Yes, sir.

Q Well, we haven't approved any like this. That doesn't mean we won't but we haven't.

A The --

Q Intentionally we haven't.

MR. BRUCE: Could I recall Mr. Luther just for one more thing?

MR. STAMETS: Yes. Let's see if there are any more questions of Mr. Campbell. Being none, he may be excused.

H. C. LUTHER (RECALLED,

having been previously sworn, testified as follows, to-wit:

REDIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Luther, do you have any comments on

disposal into the San Andres formation?

A My comments are twofold.

First, in my thirty-one years in west Texas and southeast New Mexico very few wells that in the many years I spent with Chevron was drilled, the San Andres has always been exposed the casing. We never got the cement, and I'm only saying this, that soon we will find (not understood) in the (not understood) because of static conditions.

We have a field here with sixteen years and we don't have one case involving, that I know of, where these wells have been, the old wells, no casing problem.

So every day here they're being exposed to cement has not caused casing problems. I don't know how thin that casing is, but, you know, we haven't -- we don't have any holes in the pipe as far as we know.

Another thing is that in the last few new wells we've drilled in the Tolk Field, talking about the amount of water, because we are infill drilling on 80-acre spacing and the original water was a lot more, and I recall the 26 No. 5 right offhand, we started out pumping about 300 barrels of water and if I'm correct, we're down to about 100, so as you produce the water, I mean as you produce the oil, because you are in a field that has produced a lot of oil, your water drops with your oil, so I feel like our drilling program, though say in two or three years our oil will drop, but also our water is going to drop, too, but we

still, it costs to get rid of that water and the alternative is going to be seen in every well there and that's the -- that's the same cost, I guess, as -- I don't know what we're paying for that, but my experience in all the fields, and I've been here thirty-one years, that usually if the San Andres water is corrosive you don't find out in five or ten years. You're going to have a hole in your pipe, I've seen it too many times where we didn't have cement, and I can't believe that (not understood) of sixteen years with that much porosity and that 200 foot of interval that you don't have corrosion existing today and you don't see holes in that pipe.

So I think the field will be depleted before we harm anything, and that's my personal opinion based on thirty-one years of experience out here in west Texas and -- and I'm a geologist but I spent most of my life in the production working with engineers, so I'm not dumb to engineering parlance. They just don't like to admit geologists know anything about engineering, but I do.

And that's my only comments I'd like to make about it.

MR. STAMETS: All right, are there any questions of Mr. Luther?

MR. DICKERSON: Just one.

RECROSS EXAMINATION

BY MR. DICKERSON:

Q Mr. Luther, have you ever heard of Windmill Oil Company in Hobbs, New Mexico?

A I have not.

Q The Examiner has, so I don't think I have any more questions.

A Well, I've never heard of Windmill Oil Company. I guess I missed it somewhere along the way.

MR. STAMETS: Mr. Luther may be excused.

Does anybody have anything they wish to -- oh, you've got a -- you've got a --

MR. DICKERSON: I have a star witness of my own.

MR. STAMETS: You may proceed.

DAVID BONNEAU,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. DICKERSON:

Q Your name, your occupation, and where you reside, Mr. Bonneau.

A My name is David F. Bonneau. I reside in Artesia, New Mexico, and I work as an engineer for Yates

Petroleum Corporation.

Q Mr. Bonneau, have you previously testified before this Division or one of its examiners and had your credentials accepted as a petroleum engineer?

A Yes, sir, I have.

MR. DICKERSON: We tender this witness, Mr. Examiner.

MR. STAMETS: He is considered qualified.

Q Mr. Bonneau, do you have an opinion of the Coastal proposal to inject into the two proposed wells in this case?

A Yes, sir. I'm concerned that injection of water in the San Andres zone in these two injection wells will result in damage to the unprotected casing in one or more of the nearby Yates Petroleum Wells.

Q And what do you base that opinion on?

A I've prepared an Exhibit Number One, which is a map of the area in question.

Exhibit One is a map of the area in question. The leases colored in yellow -- stole your color there -- are operated by Yates Petroleum.

The two red triangles are the locations of the proposed Coastal injection wells and there are five blue dots indicating Yates Petroleum wells in the area. The lower red dot is actually misplaced by about a quarter inch. It should be slightly to the west so that the injection

wells are really closer to the Yates wells than we've indicated.

Four of the wells operated by Yates lie approximately three-quarters of a mile to maybe a mile and a quarter away from the proposed injectors. Our wells lie outside the half mile circle but they're inside the two mile area of study.

And as the rest of my explanation I'd like to turn to the second exhibit, which is just a wellbore schematic similar to those presented by Coastal.

This particular one is for the HEYCO YL State No. 1, which is located about three-quarters of a mile west of the proposed injection in Section 22. The casing and cementing scheme is very similar to what Coastal described. There's intermediate casing set at 4180 feet and the cement is circulated to the -- to the surface in our wells.

The production string was cemented with 1200 sacks of casing -- probably sacks of cement would be more accurate, and the cement was brought up to approximately 4000 feet from the bottom of the hole. That's still not enough to cover the San Andres.

This schematic is typical of the Yates wells in the area in that none of the Yates wells have cement across the San Andres interval just as none of the Coastal wells have cement across the San Andres interval.

Q Mr. Bonneau, what risk to the Yates wells

do you see from the proposed injection program of Coastal in this application?

A Well, I feel that injection in the San Andres will result in collapsed casing or holes in the casing. Monitoring might help the problem but it's well known in my thirty-one months of experience, or whatever it is, that the Slaughter zone of the San Andres is quite a heterogeneous formation and injection water could easily bypass any monitor well and move in a direct unprotected line from the 22-1 to our HEYCO YL or from the 27-1 to the Yates well directly west, which actually is named Dean Ranch, not that it matters all that much.

Q And that process would be what we engineers call channeling, would it not?

A Yes, sir.

Q In your opinion would the granting of this application be in the interest of protection of correlatiave rights, and prevention of waste?

A No.

MR. DICKERSON: No further questions, Mr. Examiner.

MR. STAMETS: Are there questions of the witness?

MR. BRUCE: I have a couple of questions.

CROSS EXAMINATION

BY MR. BRUCE:

Q When was the HEYCO YL Well drilled?

A The HEYCO YL Well was drilled in 1984.

Q And how long does Yates anticipate its well, the HEYCO YL, to produce?

A I anticipate they'll produce ten years, the wells in the area in general will produce ten years.

Q And have you made any studies on what you believe is the rate of migration of water, the injection water, to the, well let's say the YL Well?

Or do you have any idea how long it will take for that -- for the injection water to reach the YL Well?

A No. As I said, I'm concerned that it can get there very, very rapidly through channeling in the San Andres, which I've seen in other San Andres wells.

Q But you're not sure that will happen in this case?

A No, I have absolutely no certainty of that will happen.

MR. BRUCE: I have no further questions.

MR. STAMETS: Are there any other questions of the witness?

MR. DICKERSON: Yates moves Exhibits -- admission, Mr. Examiner, of Exhibits One and Two.

MR. STAMETS: The exhibits are admitted. The witness excused.

Anybody have anything further they wish to offer in this case?

The cases will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division