CASE 8778

APPLICATION OF JOHN YURONKA
FOR SALT WATER DISPOSAL,
LEA COUNTY, NM

BEFORE EXAMINER DAVID R. CATANACH

DECEMBER 4, ~~1986~~ 1985

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MR. CATANACH: We'll call next Case 8778.

MR. TAYLOR: The application of John Yuronka for salt water disposal, Lea County, New Mexico.

MR. CATANACH: Are there appearances in this case?

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin, appearing on behalf of Mr. John Yuronka, and I have one witness.

MR. CARR: May it please the Examiner, my name is William F. Carr, with the law firm Campbell & Black, P. A., of Santa Fe.

I'm appearing on behalf of Doyle Hartman. I have one witness.

MR. CATANACH: Are there other appearances in this case?

Will all of the witnesses please stand and be sworn?

(Witnesses sworn.)

JOHN YURONKA,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Yuronka, for the record would you please state your name and where you reside?

A My name is John Yuronka and I reside in Midland, Texas.

Q Mr. Yuronka, do you hold any professional degrees?

A Yes, sir, I do.

Q And in what profession do you have a degree?

A Petroleum engineering.

Q Mr. Yuronka, have you previously testified before the Oil Conservation Division as a petroleum engineer?

A Yes, sir, I have.

Q You have brought today's application for approval of the Hodges No. 1 Well as a salt water disposal well in the Langlie Mattix Pool?

A Yes, sir.

Q And is that a well that you still own and

control?

A Yes, sir.

Q Pursuant to your application, Mr. Yuronka, have you personally or under your direction and supervision prepared the Commission Form C-108?

A Yes, sir, I did.

Q And you have prepared the attachmentss that go with that exhibit?

A Yes, sir.

Q Would you describe for the examiner how long you have been active in this particular portion of Lea County, New Mexico, with regards to practicing your profession and drilling and producing wells?

A Since 1952.

MR. KELLAHIN: We tender Mr. Yuronka, Mr. Examiner, as an expert petroleum engineer.

MR. CATANACH: Mr. Yuronka is so considered qualified.

Q So that we can orient the examiner ot what you're requesting, Mr. Yuronka, let me show you what is marked as Exhibit Number One, which is the plat.

First of all, sir, would you identify for us by name and location the proposed well that you want to convert to salt water disposal?

A The name of the well is the Hodges No. 1

and it is 660 from the south and 1980 from the east line of Section 8, Township 24 South, Range 37 East.

Q Directing your attention to Section 8, and looking at the south half of the southeast quarter, this is identified on the plat as the Hodge Lease?

A Yes, sir, it is.

Q Do you have any other wells on this lease other than the proposed disposal well?

A Yes, sir, there is Well No. 2, which is one location of the proposed disposal well.

Q And from what formation does that well produce?

A It also produces from the Langlie Mattix Pool, which is the lower 100 feet of the Seven Rivers and all of the Queen formation.

Q Using Exhibit Number One as a guide for us, Mr. Yuronka, would you locate for us the possible producing wells that produce water which you are seeking to dispose of in the disposal well?

A I propose to dispose of the water produced by Well No. 2 into the disposal well and also my Thomas Lease, which comprises the north half of the southwest quarter and the northwest quarter of the southeast quarter of Section 17, Township 24 South, Range 37 East.

Q Do all those wells produce from the Lan-

glie Mattix?

A Yes, sir, they do.

Q And is the water produced from those zones Langlie Mattix water that you propose to inject into the Langlie Mattix zone --

A Yes.

Q -- in the disposal well?

A Yes, sir.

Q We'll go into some detail later, Mr. Yuronka, but can you approximate for us the volume on a daily basis in barrels that you would propose to have authority for disposing in this well?

A Well No. 2 was tested rather extensively for two weeks by itself and it makes 36 barrels of water a day.

The Thomas Lease for the first ten months of this year averaged 26 barrels of water a day.

No. 1 was also tested by itself for two weeks and it produced 120 barrels of water a day; no oil; and approximately 20 MCF of gas.

Q Based upon your current needs and the reasonable projected future needs, do you have an opinion as to whether authority to dispose of up to 150 barrels a day in the disposal well is one that would be reasonable for your purposes?

A Yes, I do.

Q And would that number be reasonable?

A Yes, it would be reasonable.

Q To further orient the examiner as to what portion of the Langlie Mattix Pool we're looking at, can you identify for the examiner what is indicated by the heavy dashed line running horizontally between the north half and the south half of the southeast quarter in Section 8?

A It is the boundary of the Texaco Myers Langlie Mattix Unit.

Q As we follow that line around, I see by the well symbols that certain of those wells are injector wells.

A Yes, sir, they are.

Q Is Texaco operating a waterflood in the Langlie Mattix zone on its property?

A Yes, sir.

Q Can you tell the Examiner approximately how long Texaco has operated a waterflood in the Langlie Mattix interval?

A Well, it was originally put together by Skelly, taken over by Getty, and now Texaco, and it's been approximately ten years.

Q Let me direct your attention now, Mr. Yuronka, and we might save the land plat aside to give us a

reference to identify these wells as we talk about them, but let me turn now to Exhibit Number Two, which is the regional structure map, and have you identify that for me, sir.

A This is a regional structure map of the Langlie Mattix Pool, contoured on top of the Yatess.

The subject lease is colored in orange. This is from a Roswell Geological Society book that is approximately thirty years old. I do not believe the geology has changed too much in that period of time.

Q There'll be additional well spots located on the exhibit if it was updated, but the structural contours in your opinion are still accurate?

A Yes, sir, they are.

Q What significance do you as a petroleum engineer attribute the structure insofar as it affects Section 8 and Section 17?

A I don't quite know what you mean by that question.

Q Is there any structural relationship to the disposal well, the interval in the Langlie Mattix in the disposal well?

A The Yates is on top of the Seven Rivers and Queen and the Yates formation is basically the formation for the Jalmat Gas Pool.

Q In terms of structural relationship of

your disposal well and the other wells in the immediate area, do you see any adverse consequencess to using the Langlie Mattix interval as a disposal interval?

A No, sir, I do not.

Q Let's go now to Exhibit Number Three, which is simply the Commission Form C-108. Is that your signature, sir?

A Yes, sir, it is.

Q And you have reviewed all the documents required and have prepared those documents?

A Yes, I have.

Q Let's turn now to the disposal well. That's marked as Exhibit Number Four.

Can you tell us briefly the history behind the well?

A Yes, sir. I drilled this well back in April of 1975 and I completed it as shown with perforations in the injection well data sheet.

Other than the original completion of acidizing and fracing, no additional work has been done to this well.

We set 4-1/2 inch casing at 3700 feet and we calculated the cement to come up to 2580 feet and we added 33 percent excess.

The base of the salt is 2580 feet and the

top of the anhydrite, which is basically the base of the Redbeds, is 1145.

We did not run any temperature survey to find out where the top is -- or where the top of the cement was.

Q Do you have an opinion as to whether or not adequate volumes of cement were placed in the wellbore to tie back the long casing string back into the anhydrite section?

A I do -- I cannot say whether it goes up to the anhydrite section.

Q What's the quantity of product produced from this well?

A I think I stated earlier that at the present moment it producing about a -- well, right now, actually, it's shut in. It produced 120 barrels of water a day, no oil, and approximately 20 MCF.

Q And what has been its approximate cumulative production over its life?

A 6064 barrels of oil as of the first of this year.

Q How do you propose to recomplete the well for disposal purposes?

A I propose to go in there with a bit and casing scrapper to be sure we can get down and then I will

test the casing string for any possible casing leaks, and that will be repaired if there are any.

Then we will just run a plastic-lined Halliburton R-4 Packer and tubing down approximately 3300 feet and inject water and we will put the inert fluid above the packer and the tubing/casing annulus.

Q The disposal interval will retain the same perforations as depicted on Exhibit Number Four?

A Yes, sir. I will also acidize the well with approximately 1000 gallons of 202 acid.

I have two other injection wells, or salt water disposal wells, excuse me, in approximately the same set of circumstances that have been -- that have taken the water on gravity.

By acidizing these perforations approximately every four to six months the well will take the water on gravity.

Q Are those two other disposal wells in the Langlie Mattix, are they located on Exhibit Number One or are they beyond it?

A No, they are not located on Exhibit Number One. I can point them out, though, on Exhibit Number Two.

Q Okay.

A The closest well would be in the -- in

the southeast quarter of the northwest quarter of Section 29, 24 South, Range 37 East, three sections south of the proposal.

Q Those are also Langlie Mattix disposal wells?

A Yes, sir, they are.

Q Are you familiar, Mr. Yuronka, with the Division guideline of setting a surface limitation pressure?

A Yes, sir.

Q Using .2 times the depth from the surface to the top perforations?

A Yes, sir, that was what was granted to me on this disposal well in Section 29.

Q Are you seeking a similar pressure limitation for the subject disposal well?

A Yes, sir.

Q The disposal of produced water from the Langlie Mattix into this subject well, is that going to be a closed or an open system?

A It will be a closed system.

Q All right, let's start talking about the wells within the half mile radius of review, Mr. Yuronka, and let me direct your attention now to Exhibit Number Five and first have you look at Exhibit Number One and find us the well that's shown on Exhibit Number Five.

A This is Well No. 2 on the Hodges Lease and it's the well location east of the proposed disposal well.

Q This is a well you operate?

A Yes, sir. It was drilled in December -- pardon me, September of '75, and nothing has been done to it since completion.

TD was 3670. We made a volume calculation of roughly 2500 feet and established -- and we added 100 percent excess cement to that volume.

Q This is one of your producing wells that produces Langlie Mattix water that you want to dispose of in the disposal well?

A Yes, sir.

Q Without benefit of this disposal well, Mr. Yuronka, what the consequence to you of the continued production from these other producing wells?

A Well, the Hodges Lease right now is -- is below its economic limit. It cannot be produced any longer unless this application is granted.

The Thomas Lease is getting very close to that point.

Q The Hodges No. 2 produces currently about how much oil?

A Oh, it produces about two barrels a day

and about 40 or 50 MCF a day, and 36 barrels of water.

The basic production from this lease in the past has been gas, Langlie Mattix gas.

Q What do you currently do with the produced water produced from the Thomas Lease and the Hodges Lease?

A It is being hauled and disposed of by a local service company.

Q Is there an economic savings to you by switching from haulage to disposal using the No. 1 Hodges as a disposal well?

A It costs approximately $1.10 to haul a barrel of water and, as you can see from the Hodges Lease making 156 barrels a day, that would be almost $5000 a month, which is way past the economic limit with the other regular operational costs involved.

The Thomas Lease in Section 17, water is approximately the same as far as the cost is concerned, but this would put the lease in a better economical status than it is at the present time.

We will -- since the ownership, the working interest ownership differs on the two leases, the Thomas Lease would be charged a disposal fee. The Thomas Lease owners will lay a line from the Thomas Lease to the Hodges Lease.

Q Other than the Thomas Lease wells and the Hodges wells, do you anticipate utilizing this disposal well for disposing of water from any other sources?

A There is a possibility that another lease that at the moment produces only 8 or 10 barrels day would be used. It is in Section 1, Township 24 South, Range 36, the north half of the southeast quarter; however, at the moment hauling either 140 or 280 barrels of water a month, it is well within its economic limit. Unless the water production increases drastically, I will not do it until then, until that situation occurs.

Q It's not your desire to develop a commercial disposal well for other operators to --

A No, sir.

Q -- dispose of water in.

A This would be just my produced water.

Q In your opinion as an engineer, Mr. Yuronka, will the approval of this disposal well extend the economic life of your producing wells, thereby allowing you to produced hydrcarbons that would otherwise be lost?

A Yes.

Q Let's leave the No. 2 Hodges Well and go -- I believe the next one I have marked in my package of Exhibits is the Texaco Myers 231 Well?

A Yes, sir.

Q All right, would you locate that well for us on Exhibit Number One?

A It is one location east and one location north from the disposal well.

Presently it is an injection well in the Myers Langlie Mattix Unit. It is dual completed with the Jalmat Gas Zone. I think the schematic diagram shows -- of course this is not to scale but it gives you an idea.

They have been injecting water into the Langlie Mattix Zone since December of 1975. Cumulative water injected as of August the 1st of 1985 is 1,249,868 barrels of water and the pressure is 720 pounds.

Q This well is the direct north offset to your Hodges No. 2 Well?

A Yes, sir.

Q And is this Langlie Mattix interval that Texaco's been injecting 1.24-million barrels of water since '75, is that one that is a similar correlative interval to your producing interval in the No. 2 Well?

A Yes, sir.

Q And is that a similar correlative interval to the proposed disposal well that you want to use?

A Yes, sir.

Q Have you checked to determine what Texaco's current daily rate of disposal of water into the 231

Well is?

A Yes, sir, it is 380 barrels of water a day for the last month that's available in the New Mexico Oil and Gas Engineering Report, Monthly Reports.

Q When we go to the next well in the package of exhibits, the 232 Well, would you locate that well for us?

A It is one location north of the proposed disposal well.

Q We've identified this as Exhibit Number Seven, Mr. Yuronka.

What is Texaco doing with this well?

A It is presently a producer in the -- in the unit.

Q I notice on the schematic you have indicated that there was a hole in the casing found in 1976.

A Yes, sir.

Q Have you determined Oil Commission files to determine whether or not Texaco has repaired the casing hole?

A Yes, sir, I have, and they found three holes in the interval of 744 to 809 and they -- the first -- they established good circulation and then squeezed with 100 sacks of Class C cement with 2 percent calcium chloride.

They did not get cement to the surface.

They waited for 48 hours and the top of cement was at 708. They drilled it out to 834 and they tested 809 feet with 1000 pounds. They didn't say whether the test was okay or not.

Then they ran the bit to 902. Then they ran tubing and packer back into the hole and set a packer at 620; pumped out 250 gallons of acid. Then they used 50 sacks of Class C cement with 2 percent KCL and displaced the cement down below the packer to 700 feet.

They waited on the cement. They drilled -- the top of the cement was at 697. They drilled it out to 881 feet and ran 27 joints of tubing and packer. They tested with 1000 pounds and it tested okay.

Q Texaco has reported to the Commission and it's contained in the Commission records that they have satisfied themselves that they have repaired the casing leak?

A This is from the Commission report, the Form C-103.

Q All right. The producing interval that Texaco is using in the 232 Well, is that -- is that the interval that they are flooding with the offsetting Injector Well 231?

A Yes, sir. I think the original TD in this well was 3580 and they deepened it to 3684 in the beginning of this year and they fraced the open hole.

Q As we move counterclockwise around the disposal wells, the next well is identified on Exhibit Number Eight as the Texaco 233 Well?

A Yes, sir.

Q Is that what you have?

A Yes, sir.

Q Would you describe for the Examiner what Texaco is doing with this well?

A Okay. This well is one location west and one location north of the proposed disposal well.

This was converted to an injection well in July of '75 and then in February, '79, the well was deepened from 3575 to 3700 feet and they ran a 4-1/2 inch liner and perforated from 3430 to 3615.

They also did a cleanout job and treated it with acid.

Cumulative water injected in this well as of August 1st, 1985, is 1,202,850 barrels of water at 660 pounds.

Q Have you examined Commission records to determine what Texaco's current disposal rate on a daily basis in barrels of water is?

A In this particular well it's 300 barrels of water a day.

Q While we're looking at -- let me direct

your attention back to Exhibit Number One, which is the area plat, would you identify for us so that we can keep track of it, Mr. Hartman's 40-acre tract?

A It's due south of this well and one location west of the disposal well.

Q To the best of your knowledge, Mr. Yuronka, is that Hartman 40-acre tract the only acreage he owns within the area of review?

A To my knowledge it is.

Q All right. Let's go back to the disposal well -- the Injection Well 233.

Is this the same Langie Mattix interval Texaco is injecting water into that you propose to --

A Yes.

Q -- dispose water into? All right, let's continue around the circle, and I believe the next well in the exhibit package is Texaco's 248, marked as Exhibit Number Nine.

Where is that well?

A This well is two locations west of the proposed disposal well. It is -- uses an injection well in the Langlie Mattix and it is also a Jalmat gas well.

Q All right, let me find it on Exhibit Number One. This is the well that's shown as -- I see Gulf in the 40-acre tract.

A Well, that's part of the unit.

Q Ah, okay. So the well symbol in this 40 acres is the Texaco 248.

A Yes, sir.

Q What is Texaco doing with this well as operator of the Myers Langlie Mattix Waterflood?

A Well, this is a dual completion in the Jalmat gas and is used as an injection well in the Myers Langlie Mattix Unit. No work has been done to this well since it has been put on injection. As of August the 1st of 1985 the water injected into this well is 1,182,752 barrels of water and the pressure is -- injection pressure is 680 pounds.

The average daily rate for the well in July was 380 barrels of water a day.

Q Explain to us, Mr. Yuronka, the relationship of the Jalmat and the Langlie Mattix in this immediate area.

A The Jalmat Gas Pool overlies the Langlie Mattix Pool. The Jalmat Gas Pool basically consists of the Tansill, the Yates, and all of the Seven Rivers formation except the lower 100 feet.

The lower 100 feet of the Seven Rivers formation and the Queen is considered the Langie Mattix Oil Pool.

Q How do the correlative intervals in this disposal well, I mean the injection well Texaco is using, in the Langlie Mattix, how do those relate to the Langlie Mattix interval that you're going to dispose of water in the Hodges No. 1?

A It's -- it correlates. It's basically the same zone.

Q Would you be disposing of Langie Mattix water in your well in the Jalmat interval as shown on the Texaco wells?

A No, sir.

Q You'll be below that?

A Yes, sir.

Q Let's turn now to the Exhibit Number Ten. This is an Amoco well. Would you identify that well for us on the Exhibit Number One?

A The Amoco well is two locations east of the Hodges No. 1, which will be -- is the proposed disposal well.

Q And what's the status of this well?

A This well was drilled by Amoco back in 1979 and they were unable to establish commercial production and the plugging was done as shown on my exhibit and my schematic diagram.

Q All right, sir, this is the plugged and

abandoned well.

Let's turn now to Mr. Hartman's No. 1 Well, which is Exhibit Number Eleven. Locate that well for us.

A It's one location west of the proposed disposal well.

Q Would you tell the Examiner what the history of this well has been?

A I drilled the well back -- I personally drilled the well back in May of 1977 and peforations are as shown. We had tremendous water production.

We ran a tracer survey in September of '77 and it showed that the bottom perforation communicated down to the water zone at 3526. We tried to squeeze it through just the one hole and we built up pressure. We though we had it squeezed, but when we went back and reperforated and put acid on the perforations without pumping into it, it just sucked the acid in.

We tried a second time to do the same thing and it did not work, and I sold the well to Mr. Hartman on August the 1st, 1978.

Q When this well was sold to Mr. Hartman in August of '78, did you turn over to Mr. Hartman all your records on this well?

A Yes, the complete well file.

Q Did you make Mr. Hartman or his agents and employees aware of what you had done in drilling this well and attempting to --

A Yes, sir, I did.

Q How much production did you produce from this well while you owned it?

A 638 barrels of oil.

Q Do you have an opinion, Mr. Yuronka, as to whether or not the Yuronka Cooper No. 1 Well, Mr. Hartman's wellbore he purchased from you, is capable of producing hydrocarbons out the Langlie Mattix interval?

A Not unless he does a successful squeeze job.

Q In your opinion will the disposal of water into the Hodges No. 1 Well that you propose to use have any adverse effects on Mr. Hartman's acreage in that 40-acre tract?

A No, it might help them, because you have an injection well to the north, one to the west, and then with my well to the east, it may push some oil over to him.

Q Well, describe for us how -- in what way that might help Mr. Hartman in his 40-acre tract.

A Well, you've got his tract, other than to the south, he will be completely surrounded by injection wells. Now, unless he is flooded out by the injecting wells

that are now in operation in the unit, then he would be completely surrounded by injection wells other than one location to the south.

Q Your Hodges property also is the immediate offset to the Texaco Waterflood, sir. Have you seen any adverse consequences on your Hodges property from Texaco's operation of their waterflood?

A Well, yes, this is why I'm converting this well. I had hoped, I had hoped somewhere along the line that I might get some effect from these injection wells in my lease, but as you can see, the lease itself as of the first of this year, in the way of oil has produced 14,000 barrels of oil.

This year it has averaged approximately 50 or 60 barrels of oil a month. So I would say that probably at this stage of the game the lease has produced approximately 15,000 barrels of oil.

As I stated previously, the main -- the main income from this lease has been the gas that has been produced from the Langlie Mattix Oil Pool. It is not the oil that has made the lease profitable.

Q Is the water production that you're seeing in both the Hodges 1 and the No. 2 Well, and the -- and the production the way it exists now, can you attribute that to simply a depletion of the reservoir or do you have

additional reserves that you think you can produce from that reservoir?

A Now I didn't go in and check to see where all this water was coming from in the No. 1, but I feel that it would be useless for me to try to go in there and isolate each perforation and try to determine where the water is coming from. As I stated previously, the well right now is below its economic limit and some of the investors have been questioning my continued operation on it, and this is the only way that I feel, with any reasonable amount of expenditure, that we can maintain the lease.

Q Without approval of the disposal well, then, in your opinion you'll lose the Hodges Lease?

A Yes, sir.

Q All right. Let's move past Mr. Hartman's well and go to the Conoco No. 3 Well, which is Exhibit Number Twelve.

Where is that well?

A That well would be one location south and one location east of the proposed disposal well, and it is a Jalmat gas well and the TD is 3050 feet.

Q Do you see any adverse effect of your disposal in the Langlie Mattix on this well?

A There should not be any because there is at least a difference of 300 feet between the top perfora-

tion and the TD in this well.

Q Okay, let's go to the Conoco No. 4 Well. Where is that well?

A That well is one location south and one location west of the proposed disposal well. This also is a Jalmat gas well and the TD is 3200 feet and it is an open hole completion.

Q Do you see any adverse effects on the Conoco 4 Well from your disposal in the Langlie Mattix?

A No, sir.

Q Exhibit Number Fourteen, sir, would you identify and locate that well for us?

A This is Conoco's Jack "B" 17 No. 5 and it is two locations south and one location east of the disposal well. It is a Langlie Mattix gas well; TD of 3720 feet. The perforated interval is 3290 to 3414.

Q Do you see any adverse effects of your disposal on this well?

A No, sir.

Q Exhibit Number Fifteen, Mr. Yuronka, is the Conoco 7. Locate that well for us.

A One location south and one location west of the proposed disposal well. TD is 3720 feet. It's perforated from 3402 to 3644 and I see no adverse effect on this well from my proposed disposal well.

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

4 December 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of John Yuronka for salt water disposal, Lea County, New Mexico. CASE 8778

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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Q Let me ask you some general questions that apply to all the wells around the disposal well in the area of review.

Based upon your study, Mr. Yuronka, do you see any of these wellbores that could serve as a conduit by which fluids disposed of in the Langlie Mattix by you in your well will migrate up these other wellbores in some fashion and pose a risk shallower fresh water sands?

A No, sir, I do not.

Q Have you made an investigation or caused employees and agents under your control to have made an investigation of the location of fresh water sources?

A Yes, sir. There is a Dume (sic) Ranch approximately two locations north of Mr. Hartman's well and we had a -- we obtained a water sample from it.

Grobe (sic) has a water well approximately -- I cannot give you the exact location of it. It is anywhere from a mile to a mile and a quarter northeast of the proposed disposal well.

Q Approximately what depth do those waters produce fresh water?

A 110 feet.

Q Based upon your investigation, Mr. Yuronka, do you believe that the fresh water sands are properly protected so that your disposal well would not contaminate

any shallow or fresh water sands?

A Yes, sir.

Q Let's turn now to the notices, Mr. Yuronka. We have marked letters Exhibit Sixteen, Seventeen, Eighteen, Nineteen, and Twenty. Do each of those letters, letters executed by you?

A Yes, sir, I delivered these letters personally to the people. All of the five that have signed this, I delivered it to them personally on the date shown that they signed it, other than Mr. Hartman. My secretary delivered that to Mr. Hartman's office when he was located locally, and I went to Hobbs and Jal to deliver the other four.

Q Mrs. Grobe, is she the owner of the surface at the disposal well location?

A Yes, sir.

Q And the other notices went out to offset operators within the half mile radius?

A Yes, sir.

Q You've notified Texaco, Conoco, Mr. Hartman, and Amoco.

A Yes, sir.

Q To the best of your knowledge are those all the operators within the half mile radius of review?

A Yes, sir.

Q Let's turn now, Mr. Yuronka, to the water analysis.

Mr. Yuronka, you referred earlier to water analysis made on samples of fresh water in the area. Would you identify for us what I've marked as Exhibit Twenty-one and describe what that is?

A My pumper obtained a sample of water from my Hodges No. 1 and my Hodges No. 2, and also one from my Thomas 3, which would be three locations south of the proposed disposal well, which would be representative of the water produced on the Thomas Lease, since I propose to include that, disposal of water on the Thomas Lease into the Hodges.

He also obtained a sample of water from the Dume Ranch, which is I think I stated previously was approximately two locations north of Mr. Hartman's well. This was done by Halliburton and this is the form that Halliburton submitted to me.

The Grobe well was shut in when my pumper went by to get a sample.

Q This is Exhibit Number Twenty-two, the Grobe well?

A Yes.

Q All right, sir.

A He went ahead and got a sample of the

water from the water tank and I told him that was not what we wanted, so he had to start the well up from -- Mr. Grobe gave him permission, Mr. and Mrs. Grobe gave him permission to start the well up, and this -- and it did not get this until Saturday, so it was delivered to -- Halliburton did not get the sample until Monday morning and I -- they gave me this over the phone and I have tried to follow the same pattern that they have on the other -- on their regular analysis to show you what they gave me, and should the Commission request it, I will be happy to mail them Halliburton's form.

Q Based upon your studies, Mr. Yuronka, are you aware of any evidence of open faults or any other hydrologic connections between the disposal zone and any underground sources of drinking water?

A No.

Q I direct your attention back to Exhibit Number Eleven, which is Mr. Hartman's Yuronka-Cooper No. 1 Well, at the time you sold that to Mr. Hartman in August of '78, what was that well producing? Do you recall the approximate rates?

A I do not know. It did not make any oil, to my knowledge. This was over, a little over seven -- seven years ago.

It was making some gas but the gas was

not economical. It did not make enough gas for me to produce it, keep producing the lease.

Q Do you recall what -- why Mr. Hartman, or why you sold this to Mr. Hartman and why he purchased it from you, Mr. Yuronka?

A No, sir, I do not.

Q Have you submitted previously to the District Office of the Oil Conservation Division a log on the Hodges No. 1 Well?

A Yes, sir. They also have one on the Hodges No. 2, and they also have one on Mr. Hartman's well.

A log is required on these wells when you file for your allowable on the completion.

Q Do you have an opinion, Mr. Yuronka as to whether approval of this application will prevent waste of hydrocarbons?

A Yes, sir, I do.

Q What is your opinion?

A I believe it will prevent waste of the hydrocarbons and it will enable me to obtain whatever production is remaining on the Hodges Lease from my Well No. 2.

Q Do you have an opinion as to whether or not the proposed disposal in the Langlie Mattix would adversely affect the correlative rights of any of the other owners in the area?

A No, sir.

Q It will not?

A It will not, or should not adversely affect anyone at 62 barrels of water a day.

Q Would it adversely affect anyone at 150 barrels a day?

A No, sir.

Q How do those disposal rates compare to what Texaco is disposing of in their injection wells immediately offsetting your property?

A Well, the present water that I will be disposing of is just 20 percent of what Texaco is doing; if I should get to 150, it would be about, approximately about 50 percent of what Texaco is, perhaps even a little less.

Q Do you see any adverse consequences to Mr. Hartman's correlative rights, Mr. Yuronka?

A No, sir.

Q And why do you say that?

A Well, I believe his well could very possibly be affected as my Hodges No. 1 is, plus the fact that I could never obtain commercial production from it back in '77.

Q When you had that wellbore did you attempt to complete or show evidence of possible completions for that well in any other zones other than the Langlie Mat-

tix?

A No, sir. I do not have any other rights. I did not have any other rights other than the Langlie Mattix rights.

Q Were Exhibits One through Twenty-two, Mr. Yuronka, prepared by you or compiled under your direction and supervision?

A Yes, sir, they were.

MR. KELLAHIN: That concludes my examination of Mr. Yuronka.

We move the introduction of Exhibits One through Twenty-two.

MR. CATANACH: Any objections, Mr. Carr?

MR. CARR: No objection.

MR. CATANACH: Exhibits One through Twenty-two will be admitted as evidence.

Your witness, Mr. Carr.

CROSS EXAMINATION

BY MR. CARR:

Q Mr. Yuronka, you testified that you sold the southeast quarter of the southwest quarter of Section 8 to Mr. Hartman.

A Well, not actually Mr. Hartman. Mr.

Davidson purchased it and then he assigned it to Mr. Hartman.

Q And you received $40,000 for that lease, did you not?

MR. KELLAHIN: I'm going to object to the price paid. I think it's irelevant, Mr. Examiner.

MR. CARR: I think it's important to note that Mr. Yuronka sold it, received a substantial sum of money and that Mr. Hartman paid a substantial sum of money, and it is relevant.

MR. KELLAHIN: He's already told us that Mr. Davidson's the one that actually purchased it. It think this is irrelevant.

MR. TAYLOR: Why is it relevant, Mr. Carr?

MR. CARR: I think -- we're going to show that Mr. Yuronka sold to Mr. Hartman and his partner, Mr. Davidson, this lease for a substantial sum of money. He now is turning around and proposing something which we believe jeopardizes the value of what he sold.

MR. KELLAHIN: Do we have a ruling on the objection?

MR. TAYLOR: No, not yet.

MR. CATANACH: I'm going to al-

low that information to be on the record.

Q Mr. Yuronka, you received $40,000 from Mr. Davidson for this lease, did you not?

A I can't remember the exact sum but if he says that's correct, that's correct.

Q You wouldn't quarrel with that.

A No, sir.

Q And if I understand your testimony, you only had the Langlie Mattix rights.

A Right.

Q So they acquired only those rights, not Jalmat or any other horizon.

A Correct.

Q What was the total depth in the Hodges No. 1, 3700 feet?

A It's on the --

Q On Exhibit Four?

A I don't know what exhibit number it is.

MR. KELLAHIN: Which well are we looking at?

Q Hodges No. 1.

A 3700.

Q How far above the Grayburg is that?

A I picked the top of the Grayburg at 3632 on my log.

Q So this is into the Grayburg?

A Yes.

Q Did you consider using the Grayburg as a possible disposal well?

A No, sir.

Q Are you aware of the general characteristics of the Grayburg in the area?

A Yes, sir.

Q Do you believe it would have a sufficient permeability to accept water?

A Well, I don't know.

Q If we look at your Hodges No. 2, is that well being pumped now or is it flowing?

A It's pumped.

Q Looking at your proposal, are you proposing to dispose into the entire Langlie Mattix interval, the entire perforated interval, as shown on your Exhibit Number Four?

A Yes, sir.

Q If we look at the Langlie Mattix, is that a homogeneous body or is it a number of stringers?

A It's a number of stringers.

Q Would it be possible to set a packer at a lower depth and confine the injection into, say, the lower perforations in this well?

A Possible it may, but I think what you would end up with is having something where it would not be -- it will not go in on a vacuum.

Q And I think you testified that the basic production from your Hodges Lease is the gas production, not the --

A Yes, sir.

Q -- oil. And you were producing what is now called the Hartman-Yuronka Cooper No. 1. Was the primary production there the gas?

A I did not have any primary production (not clearly understood).

Q The production you had, was the majority of it, the majority of the revenue from that production for gas?

A The -- I don't remember. I don't have any exact figures on it, Mr. Carr. All I know is that it made, as you -- as I testified, it made only 638 barrel of oil.

The amount of gas, I would say would not -- was very small because I had water from the very beginning.

Q You indicated there was another lease, I think it was the north half of the southeast of 36 that you might eventually need to -- you might need to use this well

to dispose of water from that other lease.

A It's in Section 1.

Q In Section 1. It's the north half of the southeast quarter.

A North half of the southeast quarter of Section 1, Township 24 South, Range 36 East.

Q When you talk about injecting 160 barrels per day, does this figure include the possible injection from that other lease?

A Yes, sir.

Q To be sure I understand, you're not proposing to develop any kind of a commercial disposal effort out here.

A No.

MR. CARR: I have nothing further.

MR. CATANACH: Mr. Kellahin.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Yuronka, in your opinion would the Cooper No. 1 Well that you sold to Mr. Davidson, who then assigned to Mr. Hartman, would that wellbore have value as a disposal well for Mr. Hartman in the Langlie Mattix?

A Yes, sir.

MR. KELLAHIN: No further questions.

MR. CATANACH: I have no questions of the witness at this time.

Are there any questions of the witness?

If not, he may be excused.

(Thereupon a recess was taken.)

MR. CATANACH: The hearing will come to order, please.

DANIEL S. NUTTER,

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A Dan Nutter, Santa Fe, New Mexico.

Q By whom are you employed and in what capacity?

A I'm a consulting petroleum engineer, em-

ployed by Mr. Doyle Hartman in this particular case.

Q Mr. Nutter, have you previously testified before this Division and had your credentials accepted and made a matter of record?

A Yes, I have.

Q Are you familiar with the application filed in this case on behalf of Mr. Yuronka?

A Yes, I am.

Q Are you familiar with the subject area?

A Yes, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. CATANACH: Mr. Nutter is considered qualified.

Q Mr. Nutter, what is Mr. Hartman seeking in this case today?

A Mr. Hartman is seeking either the denial of the application to permit disposal of water into the Yuronka Hodges No. 1, or, if approved, certain limitations on the injection of water.

Q Have you prepared certain exhibits for introduction in this case?

A Yes, I have.

Q Would you please refer to what has been marked for identification as Hartman Exhibit Number One,

identify this, and review the information contained thereon?

A Okay. Exhibit Number One is a plat of the area. The Hodges Well No. 1, which is the proposed disposal well, is located in the southeast -- southwest quarter of the southeast quarter of Section 8, and identified by a heavy black arrow pointing to it. It is Well No. A on a proposed cross section, the line of the cross section being A-A' on this exhibit.

Also on this map are the structure contours of the commonly used Queen, which is in the -- a Queen marker, and further indicated are Hartman's leases in the area, depicted in yellow color.

The 40-acre tract immediately west of the proposed injection well is the Hartman-Yuronka-Cooper Lease, which has been discussed previously in this hearing, and in Section 16, the north half of the southwest quarter is Hartman's Fowler State Lease.

Q Are you familiar with Mr. Hartman's future plans for further development in this area?

A Yes. Mr. Hartman bought the Yuronka-Cooper Lease with the intent, and still has the intent, of recompletion of this well in the upper stringers of the Langlie Mattix Pool, where he is confident that commercial gas production can be obtained.

Q Has Mr. Hartman made similar recomple-

tions and reworked wells in similar situations --

A Oh, yes.

Q -- in this area?

A Yes, he has, and I would point out on this structure map that we have a number of Langlie Mattix wells.

If you'll -- these are circled on the Examiner's copy of the exhibit by a little red circle. If you'll go to the east of the proposed injection well, Amoco's Well No. 32 in the southeast of the southwest of Section 9 is a Langlie Mattix gas well.

Amoco's No. 29 Myers Well in the southwest of the southeast of Section 9 is a Langlie Mattix well.

Immediately south of that, Amoco, in Section 16, Unit letter B, has their "D" No. 3 Well, a Langlie Mattix gas well.

Then Exxon has three gas wells in the east half of Section -- east half of the east half of Section 16: Their No. 4, their No. 5, and their No. 6 Well. The Six is the northeast quarter of the southeast quarter of Section 16.

On the Hartman Fowler Lease, both of those are Langlie Mattix gas wells, the No. 1 and the No. 2 Fowler State, and then over in Section 17, Conoco's Jack No. 5, located in the southeast quarter of the northeast quarter

of Section 17, is a Langlie Mattix gas well.

Now with respect to the structure, you'll notice that all of these wells are up structure from the water injection wells in the Texaco Myers Langlie Mattix Unit Waterflood Project. We believe this is an important point to remember.

The No. 231 Well, which is the -- on the water injection wells Mr. Yuronka discussed, is located in the northeast quarter of the southeast quarter of Section 8. He said that this well was injecting approximately 300 barrels a day.

You'll notice that it is up structure from Hartman's Yuronka-Cooper No. 1 Well.

However, that well is 2840 feet from the Yuronka-Cooper. So while it is up structure slightly from the Yuronka-Cooper, it is a great distance away.

Now the proposed injection well of Mr. Yuronka's is up structure from the Yuronka-Cooper and we feel that these wells that are up structure would have a deleterious effect on the -- on the gas that is available in the upper portion of the Langlie Mattix in the Yuronka-Cooper Well No. 1.

Now if you go to the west of the Yuronka-Cooper No. 1, that well that's identified on the exhibit as being Gulf 248, that's a Texaco Langlie Mattix injection

well, but that's lower structurally than Hartman's Yuronka-Cooper.

The No. 233, which is directly north, is on a -- is just about the same elevation structurally, so any gas that's injected into these wells, Mr. Yuronka stated that he thought the injection of water into his Hodges No. 1 would be helpful to the Yuronka No. 1, we don't think it would be helpful inasmuch as it is higher and if you have injection into a gas zone higher, you're just going to simply flood that out.

If you have injection at a lower structural position, you may enhance production.

So, if anything, the Gulf 248 Well over here would be enhancing production from the Yuronka-Cooper.

The No. 233, which is north, is laterally the same. While it's not going to be helpful, I don't think, particularly helpful as far as injection is concerned, it wouldn't be as harmful as injecting up structure from it.

And all of these other gas wells which are in the area are up structure from the injection wells in the -- in the Myers Langlie Mattix Unit.

The other injections wells, if you go over into Section 9, that No. 229 in the northeast of the southwest of Section 9 is an injection well, so it's down

structure from these other Langlie Mattix wells, also.

We think this is a critical point, the location structurally, of injection wells, and this is why we are concerned about injection into the Hodges No. 1, because it is directly offsetting the Yuronka-Cooper No. 1; it is up structure from the Yuronka-Cooper No. 1.

Q Now, Mr. Nutter, the Langlie Mattix is an oil pool, is it not?

A The Langlie Mattix is an oil pool producing from stringers, as Mr. Yuronka has stated; however, we believe that there are isolated stringers in the upper portion of the Langlie Mattix which can be completed oftentimes completely water free, and condensate or oil free, also, producing bone dry gas if you very selectively go in, squeeze off any water, and produce just those gas zones.

We believe that we do have possible commercial production here. That's the reason Mr. Hartman bought it.

Q Now, Mr. Nutter, the wells that you've circled in red, then, would be gas wells in an oil pool.

A Those are bone dry Langlie Mattix gas wells, yes, sir, in an oil pool.

Q Exhibit One also contains a trace for your cross section, is that right?

A Yes, it does.

Q Would you now refer to what, which has been marked as Hartman Exhibit Number Two, identify it first, and then review this information for Mr. Catanach?

A Okay. First of all, I've got to apologize for not having another well to the west. I don't have the Yuronka-Cooper Well on here. It would have been neat if we could have had the Yuronka-Cooper; however, we didn't have any small scale logs to put that log on this exhibit.

So our Exhibit Number A has to start with the Hodges No. 1.

You'll note that it has three sets of perforations. It has the two sets in the -- in the Queen formation, and then the lower set, which is in the Penrose down here.

The Hodges No. 2 also has the three sets of perforations, tow in the Queen, one in the Penrose.

And then when you get over to the third well and the fourth well on the exhibit, going from left to right, you'll notice that the perforations are in only the Queen section; there are no perforations in that lower section.

This was to try to enable Mr. Hartman to obtain dry gas production in the Langlie Mattix and many of the Langlie Mattix wells that are gas wells are completed just as these two wells to the right of Exhibit Number Two

are completed, without going down into that lower section.

Q Do you believe that Mr. Yuronka would be able to get a successful disposal well in his Hodges No. 1?

A Oh, absolutely, you can always inject a lot of water, even on a vacuum, in a gas zone.

Q Are you familiar with the Grayburg in this area?

A Yes, sir.

Q Are you familiar with the permeability in this interval?

A Yes. The -- the Upper Grayburg formation is permeable and would probably make an ideal disposal well.

Q And do you believe, based on Mr. Yuronka's testimony and the -- and your review of the area, that it would be necessary to deepen the subject well to make a successful disposal well in the Grayburg?

A It might be necessary to deepen it 100 feet or so to get into the very permeable upper portion and the middle section of the Grayburg.

The Penrose is usually 160 to 170 feet thick. You'd want to get down below the Penrose. I believe Mr. Yuronka had picked the top of the Pen -- of the Grayburg at 36-something here --

MR. YURONKA: 32, I think, Dan.

A -- and if you got down into that upper

100 or 150 to 200 feet of the Grayburg, you could obtain a disposal well there.

Q Do you believe the rate of injection should be limited in any way?

A Absolutely. As we mentioned before, the volumes of injection in these other wells are greater than what's been proposed by Mr. Yuronka; however, the wells are either laterally the same elevation or they're lower than the elevation of the Yuronka-Cooper, or else, if they are higher, they're far, far away. The No. 231, as I mentioned, is 2840 feet away, whereas, the proposed injection well here today is only 1320, which is less than half the distance to that No. 231.

We think that to bring the water from the Thomas is increasing the volume of water that should be -- that -- that No. 1 Thomas well down here in the north -- south -- northwest of the southwest of Section 17, that's almost a mile away. We're bringing water from a long ways away to put into this well that offsets a very, very potential gas-producing well, and for that reason we think that the water production should at least be -- water disposal, if it is approved for the Hodges No. 1, should at least be limited to the production from the Hodges Lease.

Mr. Yuronka also talked about bringing water from a well -- from a lease up in Township 23, 36,

which is a good distance away. We feel -- we can understand the dilemma he's in finding a satisfactory means of disposal of water in these wells, but the water production has a history of increasing with time and for all we know, eventually it could climb into large volumes of water if production from several leases is brought in and put in this well, so --

Q Would you summarize now for Mr. Catanach, your recommendation?

A Okay. Our first recommendation is not to permit the injection.

The first alternative would be to require Mr. Yuronka to drill this well out and inject water down into the Grayburg formation where it wouldn't be any potential damage to the Langlie Mattix gas zone here.

The Queen could also be squeezed to prevent any possible vertical migration into the disposal zone -- from the disposal zone into the producing zone.

If permitted to be authorized for disposal purposes, we believe that the injection should be limited to the water that is produced on the -- on the Hodges Lease.

Another alternative would be to allow disposal only into those lower sets of perforations which are below 3500 feet and down in the Penrose section of the well

and not into the Queen section, which is the gas-producing zone.

Q Mr. Nutter, in your opinion would granting the application impair the correlative rights of Mr. Hartman?

A I believe there's a very serious possibility that it might.

Q Would the recommended alternatives that you have in terms of limiting the production help prevent waste and protect correlative rights of Mr. Hartman and others?

A Yes, I believe it would. It would certainly safeguard the potential in the Langlie Mattix gas zone.

Q Mr. Nutter, have you reviewed both Exhibit Number One and Two and can you testify from your own information and based on your own review as to the accuracy of each exhibit?

A They are quite accurate. I do note there's a couple -- now this map, this structure map, is similar to the one that Mr. Yuronka mentioned, that it's an old map and the geology hasn't changed a lot in the twenty years that it's been prepared, or fifteen, but I do note that there are a couple of discrepancies in the elevations here.

If you'll note on the cross section, the CUQ on the Hodges No. 1 is given as a -41.

Now, the structure map which is on the CUQ, the Hodges No. 1 is a -54, so there's a discrepancy there of a few feet.

Then if you come over to the Hodges No. 2, on the map it shows the CUQ as at a -18 whereas on the cross section it's a -11.

The others are correct.

Q Now, Mr. Nutter, would those changes or discrepancies in the reported footage affect what this cross section shows?

A It wouldn't affect the cross section at all. It would affect the lines on the structure map a little bit if you re-drew those lines.

Q Other than that are these exhibits accurate?

A These exhibits are accurate in all other respects --

MR. CARR: At this --

A -- that I've been able to determine.

MR. CARR: At this time, Mr. Catanach, I would offer Exhibits One and Two into evidence.

MR. CATANACH: Any objections, Mr. Kellahin?

MR. KELLAHIN: Yes, Mr. Examiner, we'll object to Exhibit Number Two. Mr. Nutter has, as he's told you, left off the cross section, from the cross section, the log on the Hartman Cooper Well and we believe that that well on the cross section is the well that makes the exhibit relevant. Without it the exhibit is meaningless. It is not relevant, and we therefore say it's not admissible.

MR. CARR: In response to that, I'd point out, one, that if Mr. Kellahin thought a cross section was relevant he certainly was free to prepare one, and it was our decision to come forward and put the case on today.

You'll note the application filed didn't give us any indications of the volumes of the water that would be produced, didn't give us any indications to the source of these waters, and we came forward quickly and put together the data that we had.

This is offered to show that the zone is correlative across the area and I believe it does that without the inclusion of the other well.

We don't have testimony or no one's even inferred that it doesn't; that the other well isn't in a correlative zone.

We think the exhibit is -- is

certainly relevant and this objection is just an effort by Mr. Kellahin to prevent the inclusion of any technical information, really, as to the nature of the formation (not clearly understood).

MR. CATANACH: Mr. Kellahin, I'm going to allow these exhibits to be admitted into evidence; however, I would ask Mr. Nutter to provide us with a cross section of that log for the -- on the Cooper lease.

MR. CARR: Mr. Catanach, do you want a new cross section or do you want a copy of that log?

MR. CATANACH: Just a copy of the log.

MR. CARR: And we'll mark this zone and we'll provide Mr. Yuronka with a copy.

MR. CATANACH: Fine. Mr. Kellahin, any questions of the witness?

MR. KELLAHIN: Yes, sir, thank you.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q Mr. Nutter, looking at Exhibit Number One, are any of the wells depicted on that exhibit wells that Mr. Hartman operates in the Langlie Mattix?

A Yes, the Fowler State Wells Nos. 1 and 2

on the 80-acre tract that's colored yellow are both Langlie Mattix wells and they're producing from the -- they're producing gas from the Langlie Mattix.

Also, the -- down in the southern part of Section 17, down on that Late Thomas Lease, that No. 1 Well that's in the corner there is also a Langlie Mattix gas well, and there are some other wells down in here also.

Q On the exhibit, then, those are the three wells that are identified as operated by Mr. Hartman?

A Yes, sir, those are Mr. Hartman's wells.

Q Are those all wells that Mr. Hartman has drilled and completed after August of '78?

A I can't tell you the dates of completion on those wells.

Well, wait a minute, I can, too. On the -- on the two Fowler State wells, those wells were completed in 1977 and '78.

Q Do you know when Mr. Hartman completed his Late Well in Section 17 --

A No, I don't recall the completion date on that.

Q What has Mr. Hartman done with the Cooper well that he purchased in August of '78, since he purchased it?

A He hasn't done a thing with it. The last

production of the well was by Mr. Yuronka in May of 1978. It was sold, I believe Mr. Yuronka said, in August of '78 and it's been sitting there. He's had other prospects that he's been busy with and hasn't gotten to this one yet.

Q You indicated that in this area you thought that the Grayburg formation might be a possible disposal formation.

A Yes, sir.

Q Can you identify any of the wells on your Exhibit Number One that use the Grayburg as a disposal or an injection interval for water?

A No. The wells that are used for injection are all Langlie Mattix wells and the Grayburg is not Langlie Mattix and I don't believe there's any other disposal wells on here that may be going into the Grayburg.

The Grayburg does in other areas in this portion of Lea County, however, accept water and is used for injection and disposal purposes.

Q You'll recall Mr. Yuronka's testimony on his efforts with the Cooper No. 1 Well --

A Uh-huh.

Q -- that he had a tracer survey that showed water communication in the hole and that he was unsuccessful in his efforts to squeeze off the flow of water.

A Uh-huh.

Q Do you recall that testimony?

A Yes, uh-huh.

Q What causes you to believe that Mr. Hartman will be any more successful in isolating -- Mr. Nutter, what causes you to believe, or what is the basis of your opinion that Mr. Hartman will be any more successful in squeezing off the water flow in the Langlie Mattix than Mr. Yuronka was?

A Well, I don't think that Mr. Yuronka did what Mr. Hartman would do. I've discussed the -- I've discussed this well with Mr. Hartman and it would be his proposal to go in and squeeze everything and start over again with just very selective perforations into very minor little stringers in the upper portion first, but he would have to start off by squeezing everything, and I don't think Mr. Yuronka did that, and it's a technique that Mr. Hartman has developed which has been successful in any number of wells in the Langlie Mattix, the Eumont and the Jalmat, to isolate gas stringers, and I believe that he would have a good chance of success in trying that same technique in this particular well.

Q Do you know whether or not the Langlie Mattix interval in here has stringers that contain Langlie Mattix water that are above stringers that simply contain gas?

A Yes, I think that these stringers in -- that are shown below the top of the Penrose in the Hodges No. 1 and 2 may be the ones that are contributing the bulk of the water in these wells.

Q Do you know whether or not there will be stringers above other stringers in the Langlie Mattix that would contain water as opposed to those below that would not?

A Any time you have a heterogeneous reservoir like this, and you have effective natural seals between the stringers, you may have gas above water, you may have water above gas in certain instances. That's what we're hoping for, that there is separation among those stringers and that we could find the gas producing stringers in the Yuronka Cooper No. 1.

Q Mr. Nutter, are there acceptable engineering techniques and calculations by which you can calculate how long it will take water to migrate over a particular distance?

A Yes, theoretically this can be done. You have to have a good knowledge of the total porosity in each individual stringer. You have to know the permeability, the flow rates into the individual stringers; in other words, you have to have the volume of each individual stringer and the acceptance by that stringer of the injected water, and

then perhaps it could be calculated as to how far water would go in a given length of time and a given body of water injected.

Q Have you made a calculation of how long it will take Mr. Yuronka's Hodges No. 1 Well, utilizing 150 barrels a day at a pressure not to exceed 670 psi at the surface, it would take that water to migrate over to the Cooper 1 wellbore?

A No, we haven't had time to make such a calculation. I don't know whether we could or not, but we would rest our argument on the fact that the Hodges No. 1 is uphill from the Yuronka Cooper No. 1 and the water would tend to go downhill a lot faster than it would go uphill, and it would get there faster than the water from the No. 233, which is immediately north of the Yuronka Cooper No. 1, because that's on the same structural position, and while water has been injected into that well for a long time, we're not so much concerned about water in that well as we are in the -- as we are concerned about water into the Hodges No. 1 because of the structural division.

Q So the answer to my question is yes, that there are calculations available from which you can calculate, even with a structural difference between the Hodges No. 1 and the Cooper 1, you can calculate how long it will take that 150 barrels of oil to get to the Cooper No. 1 Well.

A 150 barrels of water --

Q A day.

A Water.

Q 150 barrels of water a day, yes.

A If you were able to establish the volume of the individual stringers and their acceptance of that water, the permeability. There's so many variables in there I don't know if this could be precisely calculated in this particular area.

Those -- those calculations relate to homogeneous reservoirs more than what we've got here.

Q I notice the structural relationship between the Texaco injector 233 --

A Uh-huh.

Q -- and the Cooper 1. There's a difference in elevation of about two feet, is it?

A Just two feet.

Q Have you made any attempt to calculate what the effect, if any, has been on Mr. Hartman's property of the injection in the Texaco well of some 1.2 million barrels of oil -- of water since they commenced injection in 1975?

A No, but I would imagine that with the producing wells that offset that No. 233, being the No. 232

to the east, the 234 to the west, and I think there's one up immediately north of it, too, although our legend covers that particular location up, but those wells have been producing and so those wells have been creating an area of lower pressure, which would tend to cause the water injected into the No. 233 to go north, east, and west, rather than south, because the Cooper No. 1 has been closed in since 1978, and there hasn't been a decrease in the pressure down there.

So I would imagine that the injected water, the volume of water that's been injected into 233, has tended to go in other directions rather than towards the Cooper Jal -- or Yuronka Cooper.

Q Do you have an opinion, Mr. Nutter, as to the source or where the water is coming from that Mr. Yuronka is producing out of the Hodges No. 1?

A A certain amount of it was native water because when it was initially completed it made 33 barrels of oil and 11 barrels of water, and that was, I believe, before -- that was in early 1975 and I believe that was before the waterflood had been instituted or at the very early stages of the waterflood.

So I think a certain amount of that water is native water in that well and as I stated before, it's perforated down in the lower section of the -- in the lower

section of the Langlie Mattix, in the Penrose section.

Q Could that native water also be attributable to the frac load or the frac water in the wellbore that was being recovered?

A I don't know if all the load water had been recovered or not, but that was the initial potential and the statement wasn't made on the completion report that it was load water being recovered.

Q My recollection is Mr. Yuronka testified that the No. 1 Well currently produced about 120 barrels?

A I think he said recently he had tested it and it made 120 barrels.

Q Of water a day.

A Yes.

Q How much of the 120 barrels of water a day would you attribute to original formation water --

A I would have no way of knowing, but I do know that the 1985 production for the well has averaged one barrel of oil, 37 barrels of water, and 28 MCF per day for 1985, according to the reports filed by Mr. Yuronka, so this new test, I don't know, that's quite a bit more than the average production for the year.

Q Let's look at the possible sources for that water that Mr. Yuronka finds in the Hodges No. 1.

Let's look at the Texaco injector 231,

Mr. Nutter. What is the structural relationship of the injector 231 to the Hodges No. 1?

A According to the structure map they're pretty much equal. I don't have the actual top on that well, but it looks like it lays between the two structural contours; the same two structural contours.

Q Would it be possible for the water Mr. Yuronka experiences in the Hodges No. 1 Well to have been -- the source of that water to have been injected by Texaco in that well at the rate of some 1.2 million barrels of water since December of 1975? Wouldn't that be a possible source of this water?

A Anything is possible but again you've got injection -- you've got producing wells to the north, to the west, and to the east of that Well No. 231, so -- and you've had the No. 1 and No. 2 on production all this time, so some of the water down here may have come from the 231; some may have come from the 233, I don't know, but certainly those wells are not up structure from the Hodges No. 1, as the Hodges No. 1 would be with respect to the Yuronka Cooper.

Q What's the difference in structural position between the 231 and the Hodges 1?

A About 74, 75, 76 feet, something like that; 74 feet, I believe.

Q You don't have any number marked on the

231. What's the minus number for that?

A Oh, I don't know what the minus number is on that well, but it falls in between the contours here. We have it for the -- we have it for the 232 at a -94 and we don't have it for that 231; I don't know what that is.

Q Well, it looks like it's on the same structural strike with the Hodges No. 1.

A Yes, it is between the same two contour lines here.

Q All right. The Texaco 248 Well to the west of Mr. Hartman's well, that's an injector well, isn't it?

A Yes, sir, down structure from the -- from the Cooper.

Q And that well has injected water in the Langlie Mattix since December of '75, 1.18 million barrels of water, has it not?

A It's some volume; I don't have that figure here before me.

Q Has Mr. Hartman filed objections with Texaco as operator of the Myers Langlie Mattix Waterflood as to the rates of injection that he's -- his property is subject to from their disposal system -- their injection system?

A No, he has not.

Q What significance is it to you as an engineer if a disposal or an injection well will take fluids under a vacuum? What does that tell you?

A That there's an extreme permeability and probably lots of porosity to hold it. The water will go in and there's some place for it to go.

Q If the fluids in the -- if the water disposed of into the Hodges No. 1 Well will take water on a vacuum, that would not have any possible adverse effect on Mr. Hartman, would it?

A The fact that it's a vacuum?

Q Yes, sir, if it would take it on a vacuum.

A I don't as that would have any significance whether it was a vacuum or whether it was being put in under pressure.

Q All right, let me find out. What's the frac pressure of the Langlie Mattix, Mr. Nutter?

A I don't have anything in front of me, Mr. Kellahin, that would indicate that. I really couldn't tell you what the frac pressure is there.

Q Would it make a difference to you as an engineer as to whether this water was disposed of in this well on a vacuum or at, say, 1500 pounds?

A Well, I don't know what the frac pres

sure is, but of course if you exceeded the frac pressure, why, the water would go other places than it would on a vacuum.

Q What I'm trying to find out, Mr. Nutter, is whether or not it makes a difference to you as an engineer that this water be disposed of under a vacuum or whether or not it can be disposed of at a surface pressure limitation of 1500 pounds. If it doesn't make any difference, I need to know.

A I didn't know you were proposing a surface pressure of 1500 pounds.

Q I'm asking you whether that number makes any difference.

A 1500 pounds plus the hydrostatic head would probably be in excess of frac pressure.

Q And what will happen to the fluids?

A Well, the fluid -- it's going to fracture the formation. I don't know where it will fracture them or where they'll go.

Q All right.

A But if it fractures the formation, they're going to go into other than the injection zone, certainly.

Q Does it make a difference to you as an engineer if the pressure at which the fluids are disposed of

in the Hodges well is at a point just slightly below the frac pressure? Does that make a difference between that number and putting water in under a vacuum?

A It wouldn't make any difference in that the water is going to migrate whether -- it's got to go someplace whether it's going in under a vacuum or going in under pressure. It's going into the reservoir and going somewhere, and we feel that in this particular case the water is going to go down structure towards the Yuronka Cooper.

And you just don't waterflood gas zones by injecting water above the gas. It just isn't being done these days. If you're going to waterflood a gas zone, you put the water in at the base of the gas zone, not at the top of the gas zone, and they do pressurize gas zones in some places.

As a matter of fact, the Gulf -- or the Texaco 248 over here is probably pressurizing the gas zones here, if those stringers are in communication.

Q Have you found any data or are you aware of any information that shows any of the perforations in the Cooper 1 Well are capable of producing Langlie Mattix gas?

A No, that would be for Mr. Hartman to decide, just exactly where he wanted to perforate. He would have to examine the logs very carefully, I'm sure.

Q Have you examined the logs?

A No, I haven't. That's been my problem in preparing this exhibit, that I didn't have the log on that -- on that well.

Q On Mr. Hartman's well?

A On Mr. Hartman's well. He said he didn't have any small scale logs for us.

Q All right, sir.

A So we're hoping we'll be able to get those logs and furnish them to Mr. Catanach.

MR. KELLAHIN: I have nothing else of this witness.

MR. CATANACH: Mr. Carr?

MR. CARR: I have no redirect.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Nutter, do you know when Mr. Hartman plans to start working on this well?

A Well, he's got lots of prospects that he's working on and I don't know just when. He doesn't have any plans for tomorrow on it, that's for sure, nor this year, but I -- and I couldn't tell you when he would be planning to work on the well.

But he bought it with the intent of at-

tempting a recompletion, and I'm sure he will. He's got over $40,000 sitting in it right now, he'll do something with it.

MR. CATANACH: I have no questions of the witness.

Are there any other questions of the witness?

MR. KELLAHIN: No, sir.

MR. CATANACH: If not, he may be excused.

Would you gentlemen like to give closing statements or anything?

MR. CARR: Brief closing statement.

Mr. Catanach, Mr. Hartman and Mr. Davidson purchased a 40-acre tract, being the southeast quarter southwest quarter of Section 8 from Mr. Yuronka. We are now confronted with a situation where Mr. Yuronka has a problem on the offsetting property and the way he's going to solve that is by disposing water in the well immediately up structure from us in such a fashion that we believe it may preclude future development of the Langlie Mattix in the tract he sold us.

We have a reservoir that I think from the testimony presented obviously is capable of

commercial gas production from certain zones.

Yuronka believes that the zone into which he proposed to dispose water is not commercial and cannot be returned to commercial production.

Mr. Hartman disagrees and I believe his track record in the area shows that he is uniquely qualified to go into wells of this nature in the Jalmat and in the Langlie Mattix and rework them and redevelop the tract and return tracts of this nature to commercial production.

We're here today asking you not to enter an order that would impair the correlative rights of Mr. Hartman. We also are here to remind you that you have a statutory duty under Section 72-12-B4 to prevent the premature abandonment of zones that can produce hydrocarbons in commercial quantities, abandonment that results from the injection of water into these zones.

We think if you are to carry out your statutory duty to prevent waste and protect correlative rights and protect these zones from premature abandonment due to water encroachment, you really have no alternative but to deny the application of Mr. Yuronka.

If you elect not to deny the application but to grant it, we believe that we have proposed to you certain recommendations as to limitations on

volume and restrictions as to the intervals into which the water is to be disposed that will at least assist Mr. Hartman and afford him some protection.

We do believe, however, if you are to truly meet your statutory directive, you have no alternative but to deny the application.

MR. CATANACH: Thank you, Mr. Carr. Mr. Kellahin?

MR. KELLAHIN: Mr. Catanach, Mr. Hartman's attorney has said that the Cooper 1 Well was one that was obviously capable of production of gas in the Langlie Mattix. I respectfully disagree. I think the proof is to the absolute contrary; that the only evidence before you shows that that well is not capable of producing gas from the Langlie Mattix.

Mr. Yuronka has tried. It did produce some oil and some small quantity of gas and they had a water problem. He ran a tracer survey on it. He found that he couldn't squeeze off the water flow. Mr. Yuronka is a respected engineer and he knows his business and he's done his best to restore production in that well and could not.

There's nothing but speculation to believe that Mr. Hartman can now do something. Mr. Hartman's very aggressive in this area. He's demonstrated that over the years and despite the ability, apparently, to do

something with this well, some seven years have gone by and he's not done one thing with this well.

Your statutory obligation is correctly stated by Mr. Carr. You have an obligation to protect from premature abandonment those zones that can produce.

There's no evidence in this case that the Langlie Mattix can produce. The evidence shows otherwise.

Correlative rights is not an absolute right. Mr. Hartman has the opportunity to produce whatever hydrocarbons he can out of his well. It's simply an opportunity. He's had seven -- some seven years of that opportunity. It is unfair to require us not to use this well for disposal while he continues to have additional periods of time as an opportunity.

Mr. Yuronka has demonstrated to you a very viable, real reason to use this well for disposal. It's one that demonstrates to you actual fact that wells will be prematurely abandoned, that additional reserves will be produced, that are going to be lost. We have actual facts versus the speculation.

I think you have an abundance of data on which to make a decision. The data is overwhelming that demonstrates the absolute need for this as a dispo-

sal well. Mr. Yuronka is not coming in here asking for a commercial disposal well. He wants 150 barrels a day. See how that compares with what Texaco's doing in the Langlie Mattix immediately offsetting this. Look at the rates; look at the volumes there. That's been going on for ten years. Obviously, some effect is occurring to Mr. Yuronka's property. He's got to take actions as a prudent operator to produce what he can off of those leases. His only recourse is to have this as a disposal well.

We believe we've met all our obligations to have this approved. We would request that you approve the application as Mr. Yuronka has asked at a maximum rate of 150 barrels a day and a surface injection limitation pressure using the .2 psi per foot of depth.

Thank you very much.

MR. CATANACH: Thank you, Mr. Kellahin.

Is there anything further in this case?

If not, it will be taken under advisement.

(Hearing concluded.)

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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 (Commission) 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. 8778, heard by me on December 4, 1985.

David R. Catanach, Examiner
Oil Conservation Division