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

28 May 1986

EXAMINER HEARING

IN THE MATTER OF:

Application of Minerals, Inc., for a hardship gas well classification, San Juan County, New Mexico. CASE 8907

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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I N D E X

AL KLAAR

E X H I B I T S

MR. STOGNER: We're skipping around a little bit today. C-8904 is going to be contested. I wish to move that at the end of the docket; however, Case Number 8890, the applicant has asked that he be set back by a letter previously sent, so I'm going to call Case 8907, which is on the second page.

MR. TAYLOR: The application of Minerals, Inc., for hardship gas well classification, Lea County, New Mexico.

MR. STOGNER: Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr with the law firm Campbell & Black, P. A. of Santa Fe, appearing on behalf of Minerals, Inc. I have one witness to be sworn.

MR. STOGNER: Are there any other appearances in this matter?

(Witness sworn.)

MR. STOGNER: Mr. Carr?

AL KLAAR,

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 My name is Al Klaar. Last name is spelled K-L-A-A-R.

Q Mr. Klaar, by whom are you employed?

A I'm employed by Minerals, Incorporated.

Q And in what capacity?

A Vice President of Engineering, in Hobbs, New Mexico.

Q Have you previously testified before this Division and had your credentials accepted and made a matter of record?

A Yes, sir.

Q And how were you qualified at that time, as a petroleum engineer?

A As a petroleum engineer.

Q Are you familiar with the application filed in this case on behalf of Minerals, Inc.?

A Yes, I am.

MR. CARR: Are the witness' qualifications acceptable?

MR. STOGNER: Mr. Klaar is so

qualified.

Q Mr. Klaar, would you refer to what has been marked for identification as Minerals, Inc. Exhibit Number One, identify this exhibit, and review it with Mr. Stogner?

A Exhibit Number one starts out with a letter to the OCD in Hobbs, New Mexico, based upon receiving a shut-in notice from the purchaser of gas on the Minerals, Inc. Llano 34 State Com No. 1.

We became of the opinion, the immediate opinion that shutting the well in will be detrimental to the production from the well plus in the extreme case, create waste by having a certain amount of gas become totally unrecoverable.

Our letter dated April 18th, 1986, made application to Mr. Sexton of your Hobbs office to give us an emergency hardship classification to allow the well to stay on while we in turn then came to you for a formal hearing and got the well classified as a hardship classification well.

Q Now, attached to the April 18, 1986, letter are some other documents. Would you review those for the Examiner?

A Attached to that letter as attachments originally to Mr. Sexton, is a letter that was written in

September 17th, 1981, whereby during 1981 we were asked for a five day shut-in by the purchaser of the gas, which is Phillips Petroleum, or was Phillips Petroleum at that time. We were asked for a five day shut-in. We were of the opinion that shutting the well in for that amount of time and not producing at all, would have detrimental effects on the well, so by this letter we asked to allow -- to be allowed to let the well produce at 700 MCF a day and flare that gas and burn this volume off during the proposed (not clearly understood) shutdown.

Q Now, Mr. Klaar, would you go to the next document attached to this letter?

A The next document attached is the day by day report of work done on the well, which started in the middle of 1983 -- in fact, in the middle of December, 1983, and continued on through just about the first week of July, 1984.

Q What caused this work to be done on the well?

A The well originally was completed as three different Morrow zones with the two bottom Morrow zones being produced through one string in the wellbore and the top zone being produced through another one. It was discovered originally when the -- right after the well was drilled and a repeat formation test was run on the well,

that the pressures in the Morrow zones were drastically different, one zone from another, plus the fluid produced, the total fluid produced, being the water, oil, and gas out of each zone, were not compatible. Some were producing more water; one zone was producing more water than the other zone, et cetera, and the other way around.

So originally we completed the well as, and this sounds strange, as a dual Morrow well with one allowable producing it through two separate strings of tubing.

It became apparent that things went awry when the upper set of -- the upper tubing string, we thought, logged off. Upon checking we found out that it had sanded off, the same zone that we are now producing, produces very fine-grained sand and plugged us off by having two tubing strings in the hole, so we were forced to produce this well finally by shooting holes in the long tubing string and produce all three zones through one tubing string.

In 19 -- in December of 1983 we became aware that there was excessive amounts of water being produced and the well was obviously heading down and ready to kill itself. A test run at that time indicated that the two bottom zones were contributing all of the fluid, essentially all of the fluid and none of the gas, so at that time it became imperative to drop those two bottom zones out of the

producing interval of the well and in doing the workover it took seven months just to get the top zone back to producing again.

Q Now, Mr. Klaar, when you were doing this work on the well, were you attempting only to return the top zone to production?

A We were trying to do two things; shut off the two bottom zones and get the top zone back to production, correct.

Q And for what period of time were you really focusing your efforts on that top zone?

A I would say five to six months out of that seven month period.

Q Would you now refer to the next document in Exhibit Number One and identify that, please?

A The next document is the Form -- I don't see a form number on it, but it says Application for Classification as Hardship Gas Well. It was part of the letter sent to Mr. Jerry Sexton, and in this application at the time we filled this out, we were of the opinion that we needed a minimum rate, gas rate, of 200 to 400 MCF per day to keep this well on a producing status.

Q Was this application also forwarded to the Santa Fe office?

A We understand that it was forwarded to

the Santa Fe office and subsequently to this we also sent a copy of it.

Q And would you just identify the last two pages of Exhibit Number One?

A As part of this application for classification as hardship gas well, one of the things it asks for is the Form C-102 that goes along with the well and that's what the next attachment is, and it also asks for a plat showing where this well is located, and that is subsequently attached here.

Q Now by your April 18 letter you requested a temporary emergency hardship classification.

A Yes, sir.

Q Was that classification granted?

A As indicated in Exhibit Two, on April 22nd, 1986, Mr. Sexton sent me a letter indicating that a sixty day emergency classification was approved as of that time.

Q Would you now refer to the second document in Exhibit Number Two and identify that?

A That is that very same document I just talked about, a letter from Mr. Sexton, and it shows that it also was sent to Phillips as the gas purchaser and up here to the OCD office in Santa Fe.

Q And the next, the next letter in Exhibit

Two?

A The next letter in Exhibit Two shows that Minerals, Inc., is requesting a hearing to be docketed and at the time we sent this letter we were of the opinion that June 11th, 1986, would be a good date. We were gently persuaded that May 28th would be a better one and we agreed.

Q And how were you gently persuaded?

A Because it gives the Commission more time to make up its mind whether or not to grant us our application before the sixty day emergency period --

Q Did Mr. Lyon from the Santa Fe office request that you move the hearing forward?

A Yes, and he so sent us a letter agreeing to that May 28th was a good time; that today was a good time to have this hearing.

Q And is that letter attached as part of Exhibit Number Two?

A It is. It's the last page of Exhibit Number Two.

Q Would you now refer to Llano Exhibit -- I'm sorry, Minerals, Inc. Exhibit Number Three and identify that, please?

A Exhibit Number Three is the plat of the immediate area surrounding the Minerals, Inc. Llano 34 State No. 1.

First of all, it indicates that the east half of Section 34 there in yellow, that 320 acres is what goes with the well.

Q And that's the acreage dedicated to this well?

A That is correct.

Q Is that a standard unit?

A That is correct. It also shows that the offset operators are to the southeast, to the east, and to the northeast, Texaco, Incorporated; to the north, Pogo; and to the west, Llano, Inc.

Further, it shows that the definition between the Gramma Ridge Morrow Field, which is over twenty years old, to the west, and the East Gramma Ridge Morrow Field, which is less than nine years old, is -- runs right through the middle of Section 34. That's what that dashed red line is supposed to indicate.

Q In your opinion is there any chance that the proposed well would in fact be in communication with the two wells operated by Llano to the west in the Gramma Ridge Morrow Field?

A No, sir, no chance. There has been continuous testing going on by Llano and by Minerals. The two wells to the west there are underground gas storage wells where Llano stores gas 13,000 feet underground and that has

been in operation since 1973. There's a continuous monitoring going on of bottom hole pressures and it wasn't until '78 and '79 that the wells in the East Gramma Ridge Morrow Field, that anybody even thought of drilling a well there, and the first pressures indicated when these wells were drilled, were in excess of 80 -- 8200 pounds bottom hole, where at the same time Llano's pressure in its underground gas storage system 3200 pounds, so obviously there was no connection, is no connection to this date.

Q Mr. Klaar, the subject well is completed in the East Gramma Ridge Morrow Field. Is that field a prorated pool?

A No, sir, it is not prorated.

Q Has notice of this application been provided to the offsetting operators?

A Yes, sir, it has.

Q Would you refer to Exhibit Number Four and review the notice that has been provided?

A Exhibit Number Four indicates that on April 18th, first of all, we informed the purchaser plus the offsetting operators that Minerals was filing a request for administrative approval to classify this subject well as a hardship well.

Subsequently, after receiving some of the letters that were shown in prior exhibits, we then on May

13th, '86, informed them that a hearing has been set for May 28th, 1986. These letters were sent certified, return receipt requested, and receipts of that certification has bene received and is on file in our office.

Q Attached to your April 18, 1986, letter, was there a copy of the application for hardship gas well classification?

A Yes, my copies indicate that those letters had attachments and the attachments thereto was essentially Exhibit One.

Q And that set out the minimum sustainable producing rate that you're seeking here today?

A And one of the attachments to Exhibit One is that form application which shows that we're asking for 200 or 400 at that particular time.

Q What is the actual minimum sustainable producing rate you are seeking here today?

A The minimum rate that I'm seeking today is 350 MCF per day.

Q Now, Mr. Klaar, how was that rate obtained?

A Well, the rate was obtained with running a -- what is called for lack of a better word, a logoff test.

Q Would you refer to what has been marked

as Minerals Exhibit Number Five and review both pages of this exhibit and also explain how you conducted these logoff tests?

A Okay. On the 7th of March, 1986, we received notice from the purchaser that the well would be shut in indefinitely, and according to the OCD rules, we had no choice but to follow that shut-in notice.

We did for purposes of finding out what would happen to the well, we kept very close track of it throughout the next month, which is the first page of Exhibit Number Five here, and this, in addition to our past history of what happened on the well, convinced us to make application, first of all to Mr. Sexton of an emergency ruling and then to come in here and have this examiner hearing.

But if you will note that the notice went out on the 7th. We were asked to shut the well in sometime between the 10th and the 13th. We did shut the well in on the 13th.

On the 14th of March the well had built up to a pressure of 720 pounds. On the 15th it had dropped to 700 pounds. On the 16th it dropped another 30 pounds, and so on until on the 18th it was down to 600 pounds shut-in.

This is contrary to any type of shut-in

experience that you look for and that you expect in a gas well.

We open the well up on the 18th and you will see that it only flowed at 265 MCF a day at a flowing pressure of 50 pounds, which obviously right after shut-in under normal circumstances I would expect a gas well to have built up a head and to flow higher rates than what it normally flows.

Lo and behold, it's flowing at lower rates than it normally flows when it's wide open.

The next day it flowed finally at 445 MCF at 155 pounds, which still was not up to that 520 MCF that it flowed before the shut-in.

Again we went through a several day recorded shut-in to show that for the first three days the well built up to 760 pounds. On the fourth day it dropped to 740 and then it started dropping 10 to 20 pounds per day until we finally opened it up on the 8th of April and the well flowed at 390 MCF at 140 pounds.

By this time we're concerned. If you tie these dates together, then you see that by the time you have another shut-in or two we have been in contact with Mr. Sexton and we're asking for help. Something strange is going on here, possibly even stranger than we had thought a couple of years ago.

This well is not acting normal. It looks like it's heading down the tubes in a hurry.

Based upon Mr. Sexton's agreement to give us a sixty day emergency classification, we then, first of all, we decided that we needed to come in for a full hearing and at this hearing we decided that we needed to present testimony to show what happens when this well gets choked back.

The second part of Exhibit Number Five is a graphical representation of what we ran into when we tried to actually see in cutting the well back what happens to both the volume of gas that is produced on a daily basis and the wellhead pressure.

There are two curves on that presentation, if you will note. The bottom one shows wellhead pressure with a scale on the left side. The top one shows volume of gas produced per day with the scale on the righthand side.

To start out with, on the 7th, and by the way, way on the bottom there it indicates the dates that all of these things were occurring, the plot tries to show hour by hour what is occurring with the volume and with the wellhead pressure.

First of all, on the 7th of May, 1986, with representatives of Hobbs office of the OCD present, we

ran a 15-day bottom hole pressure bomb and for several days thereafter we're indicating what the well flows at volume-wise and pressurewise through the beginning of the 12th of May when it's left to its own devices instead of being choked back.

On the 12th of May we start choking the well back to see what would happen to the wellbore, to the wellhead pressure, and to the volume.

The first indication is there at the end of the 12th we have a situation of where the wellhead pressure is dropping along with the volume.

The next thing that happens a few hours later, the choke plugs up. Now this is not too unusual; when we get to looking back at our operations report, we find out that every six to eight months we're having to clean out that stackpack. It's filled -- the stackpack and associated equipment has filled itself full of sand, very fine grained sand.

We unplug the choke and we try and continue on with the test then. We try and get the well back to flowing more than 400 MCF before we try cutting it back.

The first appreciable trend of what we call logoff trends, we're getting into an area here where I don't think anybody had really established terminologies yet, and I want to point out to you very quickly that I'm

looking for a trend in the well where it shows me that something unusual is happening. I'm not looking to kill this well because I'm convinced that as soon as I kill the well I've had it; the well's gone. So I'm looking for trends which tells me that something unusual is going on and it's heading that way.

The first trend, as indicated in yellow there, is that occurring at the end of 5-15-86 it starts out with a producing rate of 360 to 370 MCF and a wellhead pressure of very close to 340 pounds.

If you will notice through the next 26 to 28 hours, both are dropping. Neither one of them wants to stabilize. This is contrary to your normal conditions for a gas well. If you choke a normal gas well back, you expect a pressure to come on up and stabilize at a new point, both the rate and the pressure.

We are getting antsy by the end of this period, so we open the well up a little bit more for a few hours and about a day later we go through the same process again and in the middle the 19th, somewhere around noon on the 19th, we again start and have the well choked back to where both volume and the pressure on the wellhead are declining.

Q And this was at a test rate of 333 MCF per day.

A This was at a test rate of 333 MCF per day. We think that with proper watching we can, at a rate of about 350 MCF per day we can keep this well on.

We do not have a guarantee but we feel that we can do it.

What we're doing during this time when we're choking the well back, we're not so much gathering fluid in the wellbore, we're disturbing -- we're disturbing the natural flow of the well, which, as I said, produces a bunch of very fine grained sands. At the time, up to the 19th of May, 1986, we were not too worried about it but we didn't know what was going to happen to us on the 21st of May. The 21st of May we were ready to pull our tandem bombs, which have been set almost down to 13,000 feet in the tubing. We're ready to pull them out. We go in, we latch on to them. We unseat them after an unusual pull. By unusual pull I mean more than should have been required to unseat the bomb. We had to have a slick line, obviously, in the hole with a retrieving device on it and it took close to twice the pull to unseat this bomb.

When we got to the top with the slick line, no bomb. The bomb had snapped the slick line in two and the bomb had gone out the bottom of the tubing and is now sitting at the bottom of the well -- wellbore, which, really, as you'll see later, it means the top of some other

junk that's in the bottom of the well.

Q Okay, now what happened on the 22nd of May?

A On the 22nd of May we, obviously, we're getting close to preparing this thing to come up here for today. We started flowing the well at 290 MCF and it was within the first hour of starting the well at 290 MCF, the wellhead pressure is dropping. That to me was enough indication that, obviously, we were in the same mode as we were when we started the well at 350 or 340 MCF, choking it down to that amount.

I called an end to the test at that and said, I've got sufficient data to come in here and talk to you gentlemen.

Q Was the Oil Conservation Division advised of the logoff test that you were running on the well?

A Yes, sir, they were. They were not out there each and every moment but periodically they were out there and all of this, the surface data and the volumes, were of record and kept out there and they had access to all the data that was being generated.

Q In your opinion, Mr. Klaar, will underground waste occur if this well is not granted a hardship gas well classification?

A Yes, sir, I do.

Q Would you refer to what has been marked as Minerals Exhibit Number Six and review that exhibit for Mr. Stogner and indicate what volume of gas you believe might be lost if in fact the well is not granted this hardship classification?

A Exhibit Number Six is the full producing history of the Morrow well, and it indicates that in the latter portion of '83 it started having producing problems but it also indicates during -- from the middle of '84 on through February and March of this year, it had produced gas at a stabilized rate.

The same cannot be said for the oil and water produced from the well. The gas rate was very stable.

Based upon that declining gas rate and determining that this is a 20 percent decline per year, I estimate that if the well is asked immediately to be shut in at the request of the purchaser, not to be produced, Minerals, Inc. is going to lose that well and is going to lose to the tune of about 700,000 MCF, or 3/4s of a billion cubic feet of gas.

Q Now, if I look at this graph, the yellow curve is gas production.

A Correct.

Q If you look at 1986, the gas production starts to decline prior to the time that the well was or-

dered shut in in March. Now can you explain that drop in the curve?

A In February the purchaser was already asking us to produce the well at reduced rates. We had no idea that he'd finally come in and say, hey, shut it in completely.

Q And so this drop is --

A The well would have been in February and March capable of falling and producing right along that 20 percent decline curve but the purchaser already had asked us to produce less.

Q Now if I look at that yellow curve during the last half of '84 and in 1985, there's a fairly constant decline. Was the well permitted to produce during that period of time?

A Yes, the well was permitted to produce whatever it wanted to make.

Q In your opinion is there anything mechanical that you could do to this well that would enable you to keep it from being damaged and eliminate the problems you're experiencing without seeking a hardship classification?

A No, sir, there is nothing further that -- that I could do to it. There are physically things that I could do to the well but in each instance, what I would need to do to it, I would need to kill the well. That's what I

don't want to do, you know, I'm a Catch-22 type situation. There isn't anything that I can do that I've been able to figure out which would allow the well to produce but yet change something downhole to make it produce better.

Q Now, Mr. Klaar, I think you indicated earlier that you had contact with the Division about problems with shutting this well in back in 1981. I think you had a letter included in Exhibit One.

A That is correct.

Q Would you now go to what has been marked as Minerals Exhibit Number Seven and just identify this for the examiner?

A Exhibit Number Seven is just one of the yearly copies that are submitted by the OCD and sent out to the producer to show that gas wells are required to be shut in for that year and pressure is to be reported.

If you will note, that's -- that's the one I grabbed as of '81. There are others on file with Minerals for the -- for other years for this same well, and it shows that this well has been exempt as far back as '81 and probably as far back as '80 from needing to run that yearly shut-in pressure test.

Q And has it been exempt throughout this period of time?

A As far as I'm aware, it has.

Q Would you now refer to Minerals Exhibit Number Eight, identify this and review the information contained thereon?

A Exhibit Number Eight is an updated wellbore sketch, schematic, showing what is in the wellbore. It identifies through the yellow the zone that is producing right now. Further down the hole you see the two zones that were producing along with it prior to 1983, and it also indicates in the middle the junk that is in the hole. This is an updated, fair representation of what is present down in the wellbore.

Q Mr. Klaar, in your opinion has Minerals acted in a responsible and prudent manner in attempting to eliminate problems with this well without seeking a hardship classification?

A Yes, sir, we have.

Q In your opinion will granting this application prevent the underground waste of natural gas?

A We think it will.

Q In your opinion will granting the application be in the best interest of conservation and protection of correlative rights?

A Yes, sir.

Q Have all offsetting operators been notified of this application and the minimum sustainable produc-

ing rate that you're seeking?

A Twice, they've been notified.

Q Were Exhibits One through Eight prepared by you or compiled under your direction and supervision?

A Yes, they were.

MR. CARR: At this time, Mr. Stogner, we would offer into evidence Minerals, Inc. Exhibits One through Eight.

MR. STOGNER: Exhibits One through Eight will be admitted in evidence.

MR. CARR: That concludes my direct examination of Mr. Klaar.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Klaar.

A Yes, sir.

Q If we may refer to Exhibit Number Six and please bear with me as we probably will repeat some of the history on this well.

When were the two lower zones P&A'ed?

A On that workover that started in '83 through July of '84.

Q Okay, I notice that there was production between March and June of 1984. Was that from the lower --

I mean this upper zone that we're talking about today?

A That was depending on what date, whether the two bottom zones had already been plugged off. It was either from one or any one of those.

During that seven month period the well would produce for several days and then would die and then we'd go out and we'd do another acid job or chemical job on it, or a clean-up type job on it. The whole process, I was not trying to indicate that during that whole seven month period the well never produced a drop of gas. It did at times produce some gas, as is indicated on that Exhibit Number Six, but it never sustained. It never stuck in there. It was a continuous -- well, it was a continuous dying. The well was trying to die.

It had managed it numerous times over.

Q Once the well was brought back on production in July -- in July of '84 --

A Correct.

Q Was this after numerous swabbings, did you say?

A Yes, sir.

Q And I still show water production after that. How much water is this upper zone producing at this time?

A Well, throughout this whole period, mech-

anically you've got to realize what's happening. You've got the upper zone open. You're trying to recover a fish below the upper zone. You've got 13,000 feet of salt water in the hole. The water that we're producing is not necessarily Morrow water. It's the water that we ourselves put in there through a workover. You cannot keep one of these wells -- you cannot just open it up and start pulling tubing on it. You've got to kill the well, otherwise you're going to have a blowout at some phase.

So you're continuously adding water at the top to keep the well full, to keep it quiet.

It ended up, in our opinion, that we were the ones, even though we were testing the upper zone, we were the ones that put the water there that was subsequently produced when just the upper zone was producing. But there was no way we could do -- we could keep from putting the water there, we had to keep control of the well.

Q And this is saturated brine, I would assume?

A Yes, sir, this is KCL brine. It's supposedly the water which causes the least damage to Morrow zones in southeast New Mexico by using 2 percent KCL brine.

You will also note, if you look there, that the water production is really coming down in '85 and '86, even though the gas production is on a steady decline,

the water production is coming down. I think we're finally seeing that all of the water that we put in the wellbore is starting -- into this upper zone, is starting to be depleted.

Q Will that have any effect of the logoff on this particular well after retrieving all of the fluid that was put into the hole?

A The effet should be that you should have less of a logoff trend and that was -- that was amazing about the whole thing, because we were looking at less and less water being produced, less and less fluids being produced out of the wellbore, so why should be there be a logoff trend.

Well the logoff trend is due to the fine grained sand that is being produced along with the gas. You restrict the -- you cut the turbulence down at some point when you restrict the amount of gas that's allowed to be bled off at the top and the sand starts falling back on itself, which further -- this was further illustrated by the fact that we lost that tandem bomb in the hole at the end of our logoff test. It should not have taken twice the amount of pull to unseat that bomb, but it did. We estimate that it was sand on top of the bomb that caused it.

Q This sand, is it -- how fine, when you say fine grained, how fine is it?

A Very fine grained. It is from a geological standpoint, it is the finest fine grained that a geologist looks at. You have to look between a high powered microscope to distinguish individual sand grains. You cannot with the naked eye distinguish those sand grains. It looks like silt. It isn't until you look at it underneath the microscope that you realize that these are individual, very, very fine grains, sand grains.

Your first reaction when you open up a stackpack and you find that it's full of this fine grained sand, you think, well, who put cement in there. It isn't until you start stirring it up that you realize it just doesn't -- it isn't cement. It's just consolidated and very fine grained sand.

Q What effect, is there water coming up at the same time with this sand?

A Very little. Yes, there is, as you can see on a -- on a month basis, like the last month it shows that it made -- well, really it showed that it only made 3 barrels of water per month for the total month when the well was being restricted. See that in March of 1986?

There is, there are minor amounts of water being made and there is some oil, condensate being made in the well.

Q Let's refer now to Exhibit Number Three.

I notice that the Llano 3 State Well No. 1, which is, oh, I'd say about a half a mile south -- I'm sorry, about 3/4 of a mile south, I suppose, in Section 34, what -- is this a Morrow well, too?

A Yes, it is. It has never produced more than 30 MCF a day.

Q And how does this production correlate on a log with your production in this --

A On a log it looks like it's the identical thing to the Llano 34, --

Q Yes, sir.

A -- but in no other way has it ever acted like the Llano 34. In fact the Llano 3 State, the field continues to the south. This is one of these cases where drilling in the middle of a field was a perfect example of where not to drill a hole, because this well was the biggest disappointment in the whole field. It has never made more than 30 MCF a day.

Q Does it produce liquids?

A Periodically it kicks out liquids but it does not produce any sand.

Q No sand.

A No sand.

Q Okay, let's -- I said Section 34 awhile ago; I meant Section 3.

A Section 3, right below it. I understood you.

Q Do you know anything about the two Texaco wells in Section 35 to the east of you?

A Yes, sir.

Q And are their production zones in the same vicinity as your production zone?

A The Getty 35 State -- it's -- excuse me. Originally they were drilled as Getty wells, Getty Oil Company wells. Texaco took them over.

Q Right.

A The 35 State No. 1 came on originally in the same zone as the Llano 34 State and the 35 State No. 1 was also a dual well in the Bone Springs.

Since about a year or a year and a half ago, they stopped producing the Morrow zone and they are now concentrating just on the Bone Springs zone, so it is not producing Morrow any more.

The 35 State No. 1 was a good well, a very similar type of well to the Llano 34. It did not make any sand that we're aware of. It made good gas, though.

Are you interested in that Getty 2 State?

Q Yeah, let's go ahead and talk about that.

A The Getty 2 State is producing out of a Morrow zone which is totally different from every other well

you see out there. It is on top of the Morrow, what is the generally known as the Morrow Clastics marker out in that area. It is about 100 to 120 feet above there.

So it's producing zone has nothing whatsoever to do with any of the others, other wells around here.

Q I'd like to refer to Exhibit Number Five. What size of choke plate did you have in this well?

A We had an adjustable choke and when -- when it's allowed to flow on its own, we keep sufficient pressure to allow it to separate any liquids that it wants to make in a stackpack, and to allow it to go into the purchaser's line pressure, which is usually 80 to 90 pounds.

So we end up producing the well on a wellehad basis, wellhead pressure basis, anywhere from 140 to 170 pounds when there are no restrictions on the well, on the amount of gas it produces.

Q Okay. In May of -- May 13th you show that the choke plugged. At what orifice size did that choke plug up and what --

A I do not have a record of what orifice, whether it was 11/64ths or 12/64ths. Rather I have a record of that the well was producing roughly 340 MCF at the time.

Q What plugged that choke up?

A Sand. My best guess would be that the

well choke was set somewhere about 10 to 10-1/2/64ths at the time when this happened.

Q Was this sand a problem in the beginning, '80, '81, '82, '83?

A Yes, the sand was a problem back in '81. If you remember I talked about trying to produce this well through two separate strings. The upper zone, being the one that's being produced right now, obviously, had to come through the short string of tubing, which was -- had a packer set way up above there, up above the liner, and after we perforated, I don't remember exactly how long, but sometime thereafter, after it had been flowing 3-4 million a day for some time, all of a sudden it plugged off with sand, because from the perforations it had to come out into the wellbore and there was a long string of tubing going down to the other two zones down below.

Obviously there were places in there where the 4-1/2 inch casing size and 2-3/8ths inch tubing collars left such a small amount of room that sand dropped out and plugged itself off.

Q So you've had this sand problem --

A We have had this sand problem just about from the beginning. We became aware of it about 8 to 12 months after we put the well on, because that's when it hit us, when all this top zone just gave out completely.

Q Now, is the lower tubing pulled?

A According to Exhibit Eight, the lower tubing is pulled and left behind, have been the lower Model D packer with, see, the top of the tubing fish there at 12841? That is in the hole and inside that tubing it has a three foot jar, two foot mandrill, and a no-go.

Q What's a no-go?

A A no-go is a device you run ahead of anything you run in the tubing to make sure it doesn't go out your seating nipple. The only trouble with it is it usually plants itself in your seating nipple and you can't get it out.

So it don't go no way.

Q When this tubing was pulled, was there any indication in the tubing of sandblasting, pitting?

A Yes, sir. There sure was. Until you mentioned that I'd forgotten. We ran extra strength tubing right across the perforated interval up on top and we found that tubing approximately in the area across the top zones nice and clean. The diameter, the outside of the tubing, I do not remember exactly how much it had reduced but I do remember that it had reduced itself. It had been sand-blasted.

Q I suppose the sand has created several problems up at the surface, has it?

A Yes, in the last two years, approximately from the middle of '84 on, periodically we have to just flare the well for a few hours around the stackpack and go in there and do a thorough cleaning of the stackpack because it gathers up. Everything comes to a standstill, all the fluid comes into the stackpack. 1 That's where condensate separates from water, water separates from gas, and gas goes off to the purchaser, so everything comes to a standstill in there and that's where it all falls out.

And periodically, I do not have a good record of whether it's every four months or every six months, but periodically we have to stop everything and clean the stackpack out.

Q Okay. In the process of cleaning a stackpack, do you divert the flow and flare it, you said?

A We have the capability of diverting the flow not just to the atmosphere but also completely around the stackpack and with the purchaser's permission letting him have the full well stream. He doesn't like it. He's not crazy about it, because he knows he's getting water and condensate and sand, and honestly, most of the times he says a flat no. He says, you're going to have to blow that to the air.

Q How about the wellhead? Is there any damage to the wellhead (not clearly understood) producing?

A We have replaced through, since '79 when the well came on, we have replaced the choke mechanism on the inside twice.

As far as damage on the wellhead the rest of the way, you know, through valves and such, our valves are holding. That does not guarantee there isn't any damage, but the valves are holding when -- the few times and the short times when we shut the well in.

Q When was the chokes replaced? You mentioned twice they had been replaced.

A They have been replaced twice since 1979. I'm sorry I do not have the data with me, the dates that they were replaced.

Q How do you change a choke?

A Well, the first thing is you close your main valves, which you have at least two of coming right out of the wellbore, and then you bleed off your pressure and just undo the rest of the wellhead and unscrew your choke mechanism and take it apart and put new guts in it new workings in it.

Q How long does it -- how long does -- how long does this operation take?

A On the order of 45 minutes.

Q So when you turn the well back on there's no noticeable decrease?

A None. A short shut-in time like that doesn't -- has not in the past affected it.

For one thing, during that short shut-in time your pressure is still rising at the wellhead. It isn't like that -- the first page of Exhibit Five there.

Q Uh-huh.

A If you'll notice there, on there through several days, starting with the first of April the pressure was steady, the shut-in pressure was steady at 760 pounds before it started dropping. A short shut-in does not -- on the order of just a couple of hours, does not give me any problems.

It is when that purchaser tells me that he has no idea when that well is going to come back on, whether it's going to be two months later or eight months later, that I have hiccups.

Q How could this sanding problem be in, say a well that was good that did not have a logoff problem, as you say? How could it be remedied?

A Well, depending on whether you're talking about a low -- not low, but say a shallow oil well, there is one type of sand packs or consolidations which can take place that hold the sand in place.

Q How about for a Morrow well?

A For a deep Morrow well, I have no idea

right now.

We're talking about something two and a half miles deep and I'm not sure what I'd use.

I'm sorry.

Q Is this problem uncommon in this area, did you say?

A To the immediate area it is uncommon but to the general area on the east side of the Delaware Basin, right off the shelf there in southeast New Mexico, there are other people who've run into similar problems.

Q Would smaller tubing help in this instance if, say, you were able to run it without shutting it in? This is a hypothetical thing.

A A very good point. Smaller tubing, yes, sir, would be a help because it would obviously take the turbulence or the flow capacities, the logoff trend would occur at a lower daily rate than in a 2-3/8ths inch tubing that I've got in the hole right now.

The problem with smaller tubing is how to get the smaller tubing in there.

Q Without shutting it in.

A Without shutting, and not just -- it's not just the shutting in, it is also having to kill the well. Extraneous water is very, as you're aware, and as I'm not the first one to tell you, extrnaeous water put on a

Morrow zone is one of the things, one of the least, or one of the last things you want to do to a Morrow zone.

Q And there's no other completion procedure that could be adopted out here without having to run KCL water, is that correct?

A Well, you could give me the permission to flare it at 500 MCF a day whenever I don't go down the purchaser's line.

Q And what would that do?

A That would keep the well on.

Q For how long?

A For however long the purchaser doesn't take my gas, which I can't tell you how long that will be.

Q But during --

A The point being that I keep the well flowing, see, whether I get any money for it or not, but that I keep the well flowing, that I'm not in jeopardy of shutting it in and never getting it back.

MR. STOGNER: I have no further questions of this witness.

Is there any questions of Mr. Klaar?

MR. CARR: No further questions.

MR. STOGNER: Is there any

other questions of this witness?

If not, he may be excused.

Mr. Carr, do you have anything further in Case Number 8907 this morning?

MR. CARR: Nothing further.

MR. STOGNER: Does anybody else have anything further in Case 8907 at this time?

If not, this case 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 (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. 8907, heard by me on 28 May 1986.

, Examiner
Oil Conservation Division