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

23 July 1986

EXAMINER HEARING

IN THE MATTER OF:

Application of Yates Petroleum Corporation for hardship gas well classification, Eddy County, New Mexico.	CASE 8947

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	Jeff Taylor Attorney at Law Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501
For the Applicant:	Scott Hall Attorney at Law CAMPBELL & BLACK P.A. P. O. Box 2208 Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. STOGNER: Call next Case Number 8947.

MR. TAYLOR: Application of Yates Petroleum Corporation for hardship gas well classification in Eddy County, New Mexico.

MR. STOGNER: Call for appearances.

MR. HALL: Mr. Examiner, my name is Scott Hall from the Campbell & Black law firm in Santa Fe, on behalf of the applicant, Yates Petroleum.

MR. STOGNER: Are there any other appearances?

MR. BURCHELL: Yes, Mr. Examiner. I'm Paul Burchell with El Paso Natural Gas Company. I'm in their Production Control Department in El Paso, Texas.

We'd like to make an appearance in this case.

MR. STOGNER: Are there any other appearances?

MR. HALL: Mr. Examiner, we have one witness to be sworn this morning.

MR. STOGNER: Will the witness please stand and raise your right hand and be sworn at this

time?

(Witness sworn.)

MR. STOGNER: Mr. Hall.

DAVID BONEAU,

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

DIRECT EXAMINATION

BY MR. HALL:

Q For the record please state your name and place of residence.

A My name is David Boneau. I live in Artesia, New Mexico.

Q Mr. Boneau, by whom are you employed and in what capacity?

A I'm employed as Engineering Manager at Yates Petroleum Corporation.

Q And, Mr. Boneau, have you previously testified before this examiner and had your qualifications accepted?

A Yes, sir.

Q Are you familiar with the application

filed in this case and the subject well?

A Yes, sir.

MR. HALL: Mr. Examiner, are the witness' qualifications acceptable?

MR. STOGNER: Yes, they are.

Q All right. Mr. Boneau, I'd like for you to first refer to Exhibit Number One and explain what it is Yates Petroleum has applied for and what this exhibit is intended to reflect.

A Exhibit One is the application for hardship gas well classification in this case. What Yates seeks is hardship gas classification for a well called Box Canyon Unit No. 2 in Section 13, 21 South, 21 East, of Eddy County, New Mexico.

Q All right, is there a plat contained within Exhibit One, showing the location of the well?

A Yes, sir, there is a such a plat. It is page five of Exhibit Number One.

Q All right, when was this application filed?

A This application was filed on June 20th, 1986.

Q Was the application made to both the District and Santa Fe offices?

A Yes, sir.

Q Was an emergency hardship classification sought for the well?

A No, sir. Yates did not seek an emergency hardship classification for this well.

El Paso Natural Gas told us that it would take the gas from the well while the hardship application was processed and Yates -- and El Paso has been kind enough to have done this during an interim period.

Yates feels there is an emergency in the sense that the well acts as if it cannot be killed and re-started many more times.

Q All right. Were copies of this application sent by certified mail to all offset operators and the transporter or purchaser?

A Yes, sir. Page six of Exhibit One is a list of those six offset operators. The application was also sent to Ray McClure at El Paso.

Q All right, Mr. Boneau, in what pool is this particular well completed?

A This well produces from the Little Box Canyon Morrow Gas Pool.

Q All right, is this a prorated pool?

A No, this is not a prorated pool.

Q What acreage is dedicated to the well?

A As shown on page five of Exhibit One,

that plat, the acreage dedicated to the well is the 320 acres that covers the west half of Section 13, and it's colored in orange on that plat.

Q And that's a standard proration unit, is it not?

A Yes, sir.

Q Does that plat also show the offsetting operators?

A It shows the offsetting operators. The plat is not quite as up to date as the list on page six. If you try to correlate them one for one, you need to know that what's listed as King Resources on the plat is now Vintage plus Twin Eagle on the up to date list, and you also need to know that Union of Texas covers what's listed on the plat as Allied and Union.

Q Okay.

A They are the same list; it's just companies keep changing faster than the plat can keep up.

Q Did the notice you sent out to these offset operators also contain the minimum sustainable producing rate which you are seeking in this case?

A The notice we sent out said that we would seek 200 MCF per day as the minimum sustainable producing rate.

Q What's the actual rate you are seeking?

A The actual rate that we want to talk about this morning is a minimum sustainable rate no less than 125 MCF per day. I think that's more supported by the facts that we'll see in this case.

Q Okay. How did you derive that particular rate?

A It will take a minute for me to get there but let's look at a little history and we'll get to the answer to that question.

The Morrow, this Morrow reservoir has a water drive. The Box Canyon No. 2 has produced significant quantities of water since 1980.

In July of 1980 Yates installed a compressor to keep the gas flowing in the presence of this water.

By the end of 1985 the well had produced 900-million cubic feet of gas. After water breakthrough production capacity was down to about 400 MCF a day and 100 barrels of water a day, and that's what I mean by significant amounts of water. The well produces 100 barrels of water a day.

So in 1986 market conditions have restricted production to one day a month and that's put a severe strain on the well's ability to unload and produce after those long shut-in periods.

In June El Paso agreed to produce the well continuously until the hardship application could be heard.

Okay, with that introduction I think I can answer the question.

On April 25th, 1986, the well produced 85 MCF but could not sustain production.

On April 26th the well produced 91 MCF but could not sustain production.

On June 12th the well produced 77 MCF but could not sustain production.

So this recent data shows numbers like 77, 85, 91, are lower than the minimum sustainable rate.

Since the time when El Paso allowed continuous production, the well has stayed on line at rates of 114 MCF a day on June 23rd; 115 MCF a day on June 14th and 16th; 120 MCF a day on June 21st; 131 MCF a day on June 29th; 138 MCF per day on July 12th.

The average rate during June and July has been 149 MCF a day.

So numbers like 115 to 135 are equal to or greater than this minimal sustainable rate, so we've got it bracketed to a pretty narrow range between 91 and 115 or 91 and 135, and my conclusion is that the data pin it down to a minimum sustainable rate as being about 125 MCF per

day.

Q All right, why don't we refer to Exhibit Two now and why don't you identify that and indicate to the examiner what this is intended to show?

A Okay. Exhibit Two is a daily report for the well for 1986. It has six columns and is what, four pages long. The columns show a date, a tubing pressured, a choke size in 64ths of an inch, barrels of water produced to the stock tank, MCF produced and sold, and at the far right there's a place for remarks.

So Exhibit Two is simply a listing of those -- that data for each day of 1986. It's purpose is to show some of the things we've already talked about.

First of all, it details the minimum sustainable rate argument that I just made and it also shows how difficult it's become to restart the well after a long shut-in.

And it details -- well, I guess --

Q Well, let me ask you a question about Exhibit Two. It appears to indicate that the longer the well is shut in each successive time you are required to blow the well to the atmosphere, it takes a longer period to blow the well in order to put it back on stream, is that correct?

A Yeah, that's the -- that's correct. That's the second point I think we need to make with Exhibit

Two. I think there's no choice but to look at a few of the numbers on Exhibit Two to get the point across to the examiner.

Q Okay, go ahead.

A In March, which is at the top of page two, the well was unloaded on March 10th, 3/10/86 to 3/12/86, in order to get 207 MCF production on March 18th. So in March there was a two or three days unloading the well after a 22 day shut-in in order to get some production.

In April, which is at the bottom of page two, the well was unloaded four days and I guess the days are actually 4/25/86 to 4/28/86. A little production was obtained but the well never really did stay on line after this 37 day shut-in.

Then in late May and early June, which is on page three of this exhibit, the well was unloaded continually from May 26th through June 8th. This fourteen days and after some compressor problems continuous production was finally established on June 13th.

So the last time the well was restarted it took continuous unloading of the well for fourteen days with blowing to the atmosphere of over 100 MCF a day of gas during that period to get the well to unload the water that had built up in it.

The other point with Exhibit Two is that

it shows the details that I went through to explain how we got that minimum sustainable rate of 125 MCF a day and all those numbers I quoted are listed in here and it would probably serve no purpose to go back other those again.

Q All right, Mr. Boneau, in your opinion will underground waste occur if production from the well is curtailed below the recommended producing rate?

A Yes, sir.

Q Could you describe how the waste will occur?

A Well, if the well is shut in many more times, I'm not saying that the next time it will not come back, but if it's shut in many more times, it will not be able to be restarted and the significant reserves that it has will be lost due to premature abandonment as the well loads up.

Because of the extreme difficulty in getting the well restarted in June, I just feel that it can no longer stand prolonged shut-in injection periods. The well is produced with water for six years and more or less miraculously has maintained itself this long and simply has gotten to a point where it cannot unload itself without a more -- any more, and it has significant reserves which could be produced if the well remained on line.

Q All right. I assume that Yates is incur-

ring certain costs in conjunction with the disposal of the produced water.

A Yes. Box Canyon is quite a remote area and the water disposal costs are approximately $1.40 a barrel to have the water trucked out of there.

Q And of course while the well is not producing there is no revenue being generated in order to meet those particular costs, among others.

A That's correct.

Q All right. What steps has Yates undertaken to try to remedy the water problem?

A Yates installed a compressor in 1980 which has enabled the well to produce all this long.

In the recent times Yates has used simple things, soap sticks and blowing the well, to unload it to get it back on line.

Our feeling is that this kind of proved procedure is more efficient than swabbing the well. It actually brings more water than you could swab out of the well, so we look at it as equivalent to swabbing the well.

Installation of a pumping unit is simply not economic and I could over those figures if it were necessary, but it's to the point where you can't justify installing a pumping unit. I think that installation of smaller tubing simply would not work with this much water.

You simply couldn't get this much water up one inch tubing to keep the well together.

So I think that we have done or considered what reasonable things could be done and the only answer I know is to keep it on line at some low rate.

Q All right, why don't we refer to Exhibit Three now and I'd have you identify that and explain to the examiner what it's intended to show?

A Okay. Exhibit Three is simply a monthly history of the gas and water production for the well. The well produced essentially water free from 1977 to near the end of 1979. Then water broke through.

After the compressor was installed the well produced around a million cubic feet per day and 100 barrels of water and there are monthly totals listed here but that's what they are in daily rates, and by the end of 1985 the rate was down to about 400 MCF per day and still about 100 barrels of water.

The production history for 1986 is basically off the bottom of this graph and is shown much better on the -- on Exhibit Two where we looked at it day by day.

So Exhibit Three just gives a historic production -- projection of the well's production.

Q All right, does the information on Exhibit Three in connection with the information on Exhibit Two

show the loss of productivity after the shut-in?

A Yes, sir. That's probably shown most clearly on Exhibit Two. On February 15th the well was making 350 MCF a day when it was shut in.

After that, on March 8th it made 207; on April 25th, 85; on April 26th, 91; on April 17th, 48; on June 12, 77; all much smaller numbers than the 350 MCF that it had been making.

I think one point we might make is that we're not saying that there's formation damage in this well. This well has been seeing water for at least six years and we're not swelling clays in the Morrow formation. It simply is the pressure is down to the point where it can't lift this much water any more after prolonged shut-ins.

Q Let me ask you, what are the volumes of gas you are blowing to the atmosphere in order to unload the well?

A Well, when we blow the well it produces about like it produces when -- when you get it going. We're blowing, like, 125 MCF and 100 barrels of water to a pit to the atmosphere during these times that I consider swabbing times.

So like in that period in June, we're blowing 100 barrels of water, which costs $150 to haul away, and 125 MCF of gas that is worth about $250, so we're

spending $400 a day, so that fourteen day period was $5600 to get the well back on line and of course the great fear is that the next time it will take longer or simply be impossible.

Q And at some point it would become uneconomic to continue the operation at all.

A Yes, some very nearby point.

Q Okay. All right, let's refer to Exhibit Four and why don't you explain what that exhibit is intended to show?

A Okay. Exhibit Four is a small plat of the wells in the Box Canyon Unit. It is simply to show that there is water in the area and this is a water drive, water drive area.

The Box Canyon No. 2 Well is in Section 13 and we talked about that.

The Box Canyon Unit No. 3 Well in Section 14 made 440-million before watering out in 1980.

The Box Canyon Unit 4-A is in Section 23 and it's made 1.8 BCF and now produces 83 barrels of water per day and 320 MCF.

There's another well that's very close in Section 13, not shown on this figure, called Box Canyon GJ No. 1, and it produced from the same Morrow interval that the subject well produces from. It produced 161-million

cubic feet and watered out in 1977.

So it simply shows that there is water production along with the gas in this area.

Q All right, Mr. Boneau, in your opinion if a hardship classification is not granted for this well, could it likely result in the premature abandonment of the well and reserves?

A Yes, sir. That's true.

Q How much production would be lost if the classification is not granted?

A The reserves on this well are about 250-million cubic feet. This was a number obtained at the first of the year basically from decline curves. The well's declining about 20, 25 percent per year; with the economic limit about 3000 MCF per month, that's -- those are the reserves. If you use pressure data you get much higher reserves because of the -- of the pressure maintenance by the water.

The well has produced 900-million cubic feet since the water hit in 1979 and I believe that there's 250-million more there to get.

Q Okay. In your view has Yates acted responsibly and prudently in its attempts to eliminate the problems which will result from curtailing the production?

A Yes, sir.

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

A Yes, sir.

Q And would it also be in the best interest of the conservation of the gas?

A Yes, sir.

Q Mr. Boneau, have all offsetting operators been notified of this application and production rates sought?

A Yes, sir, they've been notified and they were actually told 200 would be the rate we would seek.

Q All right.

MR. HALL: Mr. Stogner, for your information, all the offset operators were notified by certified mail. We have copies of the notification letters and green cards available and we'll be pleased to supplement the records if you deem it necessary.

MR. STOGNER: Let's supplement the record with that information for clarification of the notification, Mr. Hall.

MR. HALL: All right.

Q Mr. Boneau, were Exhibits One through Four prepared by you or at your direction?

A Yes, sir.

MR. HALL: At this time we'd

offer Exhibits One through Four and that concludes our direct.

MR. STOGNER: Exhibits One through Four will be admitted into evidence.

CROSS EXAMINATION

BY MR. STOGNER:

Q Mr. Boneau, what are the perforations -- what is the -- what is the perforated interval in this well?

A I think that's best shown, Mike, by the little schematic which is on one of those pages.

Q From 8110 to --

A Yeah, there's two intervals. From 8110 to 8126 and 8229 to 8238.

Q Has it been determined or can it be determined where the water is actually coming from?

A It's not been determined. The -- the well that I said produced from these same Morrow reservoirs that watered out produced from the lower of those two and it did water out, so I think that it's pretty clear that there is water in the lower zone.

The other wells on Exhibit Four that I talked about actually do not produce from this same zone, so there is water throughout the area in different zones. My belief is that it's in all the zones but that has not been

proven.

You know, given enough money and courage, it could be, I guess, but an awful sick patient to go doing things like that on now.

Q Does Yates feel it would be uneconomical then to determine if the water is in the lower zone and then if it was to go in and squeeze that interval?

A We feel that the better course is to produce the well as it is. If the well dies or we're not granted this, or whatever, and the well is gone before abandoning it, I think that I would suggest doing just what you said, putting a bridge plug over the bottom zone and try to swab the top in one more time.

Q You mentioned earlier that smaller tubing had not been tried, stating that you felt that smaller tubing would just not handle the liquids that are coming up.

A That's my opinion that is worth what you paid for it.

Q How much water could maximum -- or how much water could be handled, say, through 2-3/8ths --

A Well, it has 2-7/8ths inch tubing in it. I think that 2-3/8ths would help a little. I think that one inch could not handle it.

I think that what we're really getting in is speculating on it, but I think that 2-3/8ths wouldn't

help enough to be worth doing but that is my unsupported opinion.

Q What other economic attempts to eliminate or correct the problem has Yates done on this well?

A I've told you all that we've done; none others.

Q Well, that was just to curtail the production and find the minimum flow rate, is that correct?

A Well, the active things we've done are install a compressor and "swab the well back in". What we have to do is use soap stickes and blow it to the atmosphere to get the well back when it has been shut in.

Q The compressor was put on in 1980.

A Yes, sir, that's correct.

Q Is that correct? Do you have any evidence which shows me that if this well was shut in for an extensive period of time that there would be a -- that underground waste would occur, that this production would be lost?

A Well, on Exhibit Two we showed that the well had bee shut in 22 days, 37 days, oh, somewhere around 40 or 50 days, and that the last time it took 14 days of continual swabbing floats to get the well back on line.

Earlier it had taken far less time, like one day, two days, and I think that -- that is evidence to

me that the well has reached a critical point where it's not going to come back the next time or the time after that.

Q How does the choke size, does that have any effect?

A What particularly do you want to ask in the effect on?

Q Well, earlier in the year, in January you had a size 32 choke.

A Okay. The well -- the well will produce more gas if you open up the choke to a point, and we have the well choked back since El Paso's been nice enough to have it on. We've been trying to produce it at a low rate, you know. It will produce at 1/2 inch choke and probably make 350 MCF a day.

We've had it at 16/64ths and in July we cut it back -- July 10th, I guess, we cut it back to 14/64ths, which is kind of a start of a logoff test. I made the mistake of going on vacation and they didn't cut it back to 12 like they were supposed to.

But surely the smaller choke restricts the production and if continue that logff test, you know, I could tell you exactly what the minimum sustainable rate is. You know, instead I've resorted to this kind of convoluted argument which pins it down pretty closely.

MR. STOGNER: Is there any

other questions of Mr. Boneau -- Dr. Boneau at this time?

MR. HALL: We have nothing further.

MR. STOGNER: Is there any -- I have no further questions. He may be excused.

Is there anything further in Case Number 8947?

The case will be taken under advisement.

MR. HALL: You have Mr. Burchell.

MR. BURCHELL: May I make a statement?

MR. STOGNER: I'm sorry, let's go back on the record again.

Mr. Burchell, I'm sorry.

MR. BURCHELL: Again let me reintroduce myself.

I'm Paul Burchell with El Paso Natural Gas Company in the Production Control Department, and just for the record, if the Commission finds that this well -- or grants this well hardship status, that El Paso will, although we don't want the gas at this time, we would be -- to prevent underground waste we certainly will continue to produce that well at whatever -- at whatever rate

you decide and we hope you do decide to keep it as low as possible.

That's all I have to say. Thank you.

MR. STOGNER: Thank you, Mr. Burchell.

Anything further in this call?

We'll -- I need that information on notification, Mr. Hall.

If there is nothing further in Case Number 8947 I will now close -- take this 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. 8912 heard by me on 23 July 1986.

, Examiner
Oil Conservation Division