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

6 June 1984

EXAMINER HEARING

IN THE MATTER OF

Application of M. J. Brannon for a HARDSHIP WELL CLASSIFICATION, San Juan County, New Mexico. CASE 8216

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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MR. STAMETS: We'll call next Case 8216.

MR. PEARCE: That case is on the application of M. J. Brannon for HARDSHIP GAS WELL CLASSIFICATION, San Juan County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr with the law firm Campbell, Byrd and Black, P.A., of Santa Fe, appearing on behalf of M. J. Brannon.

I have one witness who needs to be sworn.

MR. PEARCE: Are there other appearances in this matter?

MR. KENDRICK: H. L. Kendrick, El Paso Natural Gas, would like to make a statement.

(Witness sworn.)

EWELL N. WALSH,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A My name is Ewell N. Walsh. My residence is 925 East Navajo, Farmington, New Mexico.

Q By whom are you employed and in what capacity?

A Employed by Walsh Engineering and Production Corporation as President.

Q Have you been retained in this case as a consultant by Mr. Brannon?

A Yes, I have.

Q Have you previously testified before this Commission?

A Yes, I have.

Q Were your credentials accepted and made a matter of record at that time?

A My qualifications have been previously accepted as an expert witness in the field of petroleum engineering.

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

A Yes, I am.

Q And are you familiar with the subject well?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. STAMETS: They are.

Q Mr. Walsh, would you please refer to what

has been marked for identification as Exhibit Number One and identify this for Mr. Stamets?

A Exhibit Number One is an application by M. J. Brannon, an operator, for classification as a hardship gas well of his Federal 20 No. 1-R, located in Unit J, Section 20, Township 25 North, Range 9 West, San Juan County, New Mexico.

Q Mr. Walsh, when was this application filed with the Division?

A April 25th, 1984.

Q Was a copy also filed with the Aztec District Office?

A Yes, it was.

Q Did you seek an emergency class -- hardship classification for the well at that time?

A Yes, we did.

Q And what action has been taken on that?

A We have not received an emergency hardship approval. This approval is evidently not granted due to some inadvertently not having the water production data on the production data submitted with the application.

Q And you were advised of that by Mr. Chavez, were you not?

A Yes, I was.

Q Now I'd like you at this point to identify what has been marked as Exhibit Number Two.

A Exhibit Number Two is the production data

for the subject well.

Q Does this contain the water data that was previously omitted?

A Yes, it does. This is to replace the production data submitted with the original application.

Q And is this information being provided to the District Office with the renewed request for an emergency classification?

A Yes, it will.

Q Would you identify Exhibit Number Three?

A Exhibit Number Three is presented due to -- to correct a depth error on the original wellbore sketch submitted with the application.

In the original wellbore sketch the tubing, 2-3/8ths tubing was indicated at 6327. It is actually at 6390, as indicated in Exhibit Three.

MR. CARR: Now, Mr. Stamets, at this time I would like to point out that the application filed with the Oil Conservation Division talked about a minimum sustainable producing rate of 100 Mcf per day on a calendar month basis.

There have been -- there was a workover the well following the time that the original data was acquired and it appears that that figure was actually low, that the figure should be 130 Mcf per day.

The legal advertisement and the notice given of the hearing did not set out that informa-

tion, set out the requested 100 Mcf per day.

We are on a short time frame in terms of attempting to get an emergency or a hardship well classification and we would request your permission to go forward with the presentation of the evidence today. We will note and continue the case until the 11th of July at the conclusion of the presentation.

We will in the meantime immediately again notify all the offsetting operators, the purchaser and the transporter of the change in the minimum sustainable rate that we're requesting.

MR. STAMETS: That's fine.

Q Mr. Walsh, would you now refer to the plat which is included with the application and review the information contained therein with Mr. Stamets?

A The plat, which is included in Exhibit One, is a plat indicating not only, location of the subject well but the offset owners.

The well, the Federal 20 No. 1-R, is indicated on the plat as the circle with the word "location" next to it in the northwest quarter of the southeast quarter of Section 20, Township 25 North, Range 9 West.

Q In what pool is this well completed?

A Basin Dakota Pool.

Q Is this a prorated pool?

A Yes, it is.

Q What is the status of the well at this

time?

A In the June, 1984 San Juan Basin Proration Schedule the well is indicated to be a marginal well.

Q And what acreage is dedicated to the well?

A The east half of the Section 20, the 320 acres.

Q Is this a standard unit?

A It is a standard proration unit.

Q And this plat shows the -- identifies the offsetting operators, does it not?

A Yes, it does.

Q Has notice of this application been given to each of these offsetting opertors?

A Yes, a copy of the letter sent to each offset operator is included in the application.

Certification of sending a copy of application was included in the application, and a copy, approval of application, has been received from Robert L. Bayless and I believe the Commission has approval from Consolidated Oil and Gas in their files.

Q And these approvals are in fact waivers to objection to the application.

A That is correct.

Q Did -- and you did send a copy of the application itself to each of the offsetting operators.

A Yes, I did.

Q So the original producing, minimum producing rate of 100 Mcf was previously submitted.

A Yes, it was.

Q All right. Was notice of the -- of this hearing, or the application, also provided to the transporter and purchaser of the gas?

A Yes, a copy of the application was sent to gas purchaser El Paso Natural Gas Company and a certification of sending the copy was included in the application.

Q All right. Would you now review for Mr. Stamets the minimum sustainable producing rate which Mr. Brannon is seeking for this well?

A We are seeking a minimum sustainable producing rate of 130 Mcf per day. We believe this is a figure that we need to have to produce it and basically request that this be on a calendar day basis, not an actual producing day basis, because there could be periods of time due to drop in line pressure or something, that it could produce above it, and we need on a calendar day basis rather than producing day.

Q How did you determine what the rate should be?

A It is estimated that the minimum flow to maintain gas production was 130 Mcf per day. Due to varying gathering line pressures a true minimum flow is hard to determine. Also, average daily production from the well was 112 Mcf per day since workover in September of 1983.

Reviewing production history, as presented in production data, you will note that this well has produced at times maybe up to 127 Mcf per day.

I am using the 130 Mcf per day to prevent the well from becoming in a situation which might be put in a shut-in status because of too low of sustaining rate set for the well.

Q Mr. Walsh, in your opinion will underground waste occur if production from the well is curtailed below 130 Mcf per day?

A Yes, a definite underground waste will occur if the well is shut-in and loss of productivity or deliverability occurs.

Q Would you describe how this underground waste will actually occur?

A The underground waste will occur if the well is shut-in or curtailed and produced water enters the gas filled porosity and blocks or prevents the gas from being produced.

Q What attempts have been made by Mr. Brannon to eliminate this problem without first coming to the Commission for a hardship classification?

A A workover was performed September 9th through September 12th, 1983. This was after swabbing the well approximately eleven days attempting to get it on production after being shutin.

At that time we lowered the tubing to de-

termine that there was no fill in the casing or especially across the perforations that would block a flow of production.

We pulled the tubing and then set a wireline retainer at 6429 feet. You may refer to your Exhibit Three, if you wish to, to show the depth and position, to attempt to shut off water if produced from the lower set of perforations from 6432 to 6434 and 6437 to 6439.

2-3/8ths tubing was run back in the well and set at 6390, 15 feet above the top perforation.

The well was swabbed and put on production.

After setting the cement retainer that was no evident decrease in water production. This indicated water production was coming through the formation to the top perforations. Consideration was given at that time to performing a cement squeeze of the perforations below the retainer, however, the probability of also squeezing the cement into the porosity of the formation above the retainer and damaging or completely plugging the porosity was very high and the consideration was discarded. Also, consideration of the installation of smaller diameter tubing was considered not applicable or feasible due to, one, in my opinion utilization of a small diameter tubing with low gas producing rates and water production rates would compound the situation of loading up or logging off of the well.

Two, if the smaller diameter tubing

created a condition that required more frequent swabbing, the cost of swabbing increase due to not only -- would increase not only due to increased frequency of swabbing but also the increase in swabbing time due to swabbing in a smaller diameter tubing.

Three, if the smaller diameter tubing was installed and it was determined that a pumping unit, rods, and subsurface pump had to be installed to effectively remove water, the additional cost of replacing the smaller diameter tubing with 2-3/8ths tubing could not probably be justified.

Four, replacing the 2-3/8ths tubing with smaller diameter tubing such as inch and a half would burden production and recoverable reserves with additional costs that could cause abandonment earlier than a point in time that it would occur without expending the cost of the small diameter tubing plus installation. It's estimated that this cost would be approximately $29,000.

Consideration of the installation of a pumping unit, rods and subsurface pump was not considered applicable or feasible due to, one, the well is now capable of producing without expenditure for equipment and installation. It's estimated the cost for that installation is some $40,000.

Two, before making such an installation at some time in the future an economic feasiblity study would be performed at that time to determine if the cost of

such installations could be justified.

Consderation was given to plunger installation and also was not considered applicable or feasible due to, one, the well does not produce sufficient gas volume, estimated requirement 300 Mcf per day, to effectively operate a plunger lift operation.

Also, consideration of any of these beforementioned installations is of no avail if a well is not classified as a hardship gas well and is not allowed to effectively produce on a continued basis. The shut-in of the production of the wells will allow the produced water to enter the gas filled porosity and block or prevent the production of the gas. Such conditions could bring about the premature abandonment of a well and loss or waste of underground reserves.

Q Would you now review the historical data on the well?

A For the historical data I would like to refer to Exhibit Number Four, Mr. Carr.

Q All right, which is your production decline curve.

A Which is the production decline curve.

Q All right.

A This production decline curve as been prepared in addition to the one that's in the original application. The one in the original application is a monthly production history. This is prepared on the production his-

tory on Mcf per day, volume, gas volume per month divided by producing days.

On the top portion of the curve, of the exhibit, you have the lines there refer to the right edge as gathering line pressure. The lower portion of the exhibit has the indicated production decline on an Mcf per day basis by month.

I'd like to point out on this exhibit some important facts.

The first is during September and October, 1982, the well was shut in due to proration balancing and additional shut-in due to pipeline curtailment. The well was put back on production in November of '82. It produced till May of 1982 -- 1983; was shut-in the month of June, July, and August, three months. This shut-in was only due to pipeline curtailment.

As indicated there, then August 25th they tried to put the well back on production and it logged off. The well was swabbed some eleven days and then we performed the workover that I previously described.

Also, in January of '84 the well logged off and was swabbed three days to get back on production. This is in the bottom part of the exhibit.

Also, in May of 1983 the log was logged off and it took two times, one time taking two days and the other, three days to get it back in production.

Another thing I'd like to bring --

Q That last swab was in May of 1984?

A May of 1984.

Q Right.

A Also, I have indicated on the production decline curve a straight downward sloping line in the period of 1982 and 1983. This is approximately what the -- I estimate the decline in production to be occurring, at that rate.

Please note that after the well was put on production in -- again in September of 1983, that I have performed the same drawing there with a straight line; however, I would like for you to note the difference in relation on the graph of these two lines. This to me is a positive indication that there was some formation damage during -- it occurred during that shut-in period of pipeline curtailment and evidently the water infiltrated some of the gas filled porosity.

Another point is on the November production, after being shut-in for balancing and curtailment, the production came up higher than it was previously before it was shut in. This is what you call flush type production after being shut-in.

This does not occur when the well is put back on production after being curtailed, water problem, and the workover.

Q Mr. Walsh, is it fair to summarize your testimony that special relief is necessary to prevent under

ground waste due to water encroachment into the producing zones and damaging the zones?

A That is correct.

Q Would you now refer to Brannon's Exhibit Number Three, which is the wellbore sketch and just attempt to review that quickly for Mr. Stamets?

A A quick review, this well had as indicated surface casing set at 258 feet, 4-1/2 inch production casing set at 6609.

The well was perforated at the indicated perforated intervals and sand/water fraced for completion.

This well remained essentially in that condition until the workover was performed in September of '83 at which time the cement retainer or temporary bridge plug, as it is now, was set at 6429.

The 2-3/8ths tubing was run back in the well and set at 6390, we thought effectively only leaving the top set of perforations open.

Q If the hardship classification is not granted for this well could it result in the premature abandonment of the well?

A Yes, it could.

Q Would you now refer to what has been marked as Brannon Exhibit Number Five, identify this, and review it for Mr. Stamets?

A I prepared this exhibit, which is basically called a cash flow analysis of the production from the

well, by setting certain critical -- not critical, but certain standards on calculating this by computer. I have determined if the well produced basically on the same decline as indicated on Exhibit Number Four after the workover and was allowed to produce, and I used for this 100 Mcf a day, allowing for some variance, and declining the production at 5 percent per annum, or per year.

The thing I would like to point out on here is the estimated volume of gas under the column Gross Gas Production indicates this to produce 609-million, or 609,000 Mcf.

This is what I estimate this well could probably produce with special relief and classified as a hardship gas well.

Q How many reserves or what effect on the reserves would not getting this application approved have?

A You would have, if we did not have this application approved, it could be we could have to abandon the well. We might lose all 609,000 Mcf or possibly as many as 400,000 Mcf, and this would be underground waste and loss of reserves.

Q Mr. Walsh, now in summary has Mr. Brannon acted in a responsible and prudent manner to eliminate the problems which will result from curtailing production from the subject well prior to requesting a hardship classification?

A Yes.

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

A Yes.

Q Will granting the application be in the best interests of the conservation of natural gas?

A Yes.

Q Have all offsetting operators been notified of this application?

A They have.

Q And will granting the application impair the correlative rights of any interest owner in the area?

A No.

Q Were Brannon Exhibits One through Five prepared by you?

A Yes, they were.

MR. CARR: At this time Mr. Stamets, we would offer M. J. Brannon Exhibits One through Five.

MR. STAMETS: The Exhibits will be admitted.

MR. CARR: And that concludes my direct examination of Mr. Walsh.

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Walsh, you talked about the minimum allowable as being assigned or authorized on a calendar day

basis as opposed to the producing day basis.

Now, exactly what do you mean by that?

A This would be -- would take care of the situation, if you would refer to Exhibit Four, Mr. Stamets, you'll notice that when the line pressure seems to increase there's a decrease in production, and at times it will drop and the production increase.

Our fluctuating line pressures up there sometimes have been -- that's pretty extreme, as you can see there. There may be occasions to where this well, if the line pressure falls down far enough, may be -- may produce over 130 Mcf per day, I'll agree, but probably in all probability it will produce under 137 Mcf all the time.

Therefore there are going to be times, it's already indicated, that we may have to swab the well again. Those are nonproducing days but the inclusion of these nonproducing days on what I call a calendar year basis into the overall production will help to, I think, justify a better rate rather than actual producing days.

Q What is your 130 minimum rate based on?

A This is based on basically past production history. At such times the well actually logged off while it was producing on the line.

Q That's on 1-12-84?

A 1-12-84, just prior to -- in December the production, actual production was 136 Mcf per day; however in January it was 79. February is coming back up, 108, 121,

127.

I believe this essentially only gives us a log off test, that that well was producing, however even at 130 Mcf a day, and the line pressure increased and it logged off, and I have picked that point. I think that it's reasonable and gives a little bit of flexibility to prevent shut-in due to maybe a slight increase over 130 for a short time.

Q Now the well was shut in in the middle of 1983?

A Yes, June, July and August.

Q Okay, and when did it go back on the line? On the 25th of August?

A The -- 8-25 was an attempt to put it on production but the well was logged off and the well was swabbed for eleven days at that point in time. It was -- we were unable to get the well to produce; therefore the work-over situation was considered and attempt to shut water off.

Q Okay, and what -- and the workover took place before the September production occurred?

A Yes, sir. Yes, sir.

Q Is there a possibility that you shut off some gas in this workover?

A There is a, well, very distinct possibility. We realize that this possibly could occur; however we had a water situation which was probably more critical at the time.

Q Looking at your production report, it looks like that water situation became more critical at the end of 1982. Is that when the production picked up?

A End of 1982? Well, I believe what you're seeing there is that flush period when it came back on after being shut in during November and December?

Q Uh-huh. I was looking, though, at the water volumes. All during 1982 up until the last month had been primarily in the 40 - 50 barrel a month range and then after that I only see one month where the water volume was 50 or less.

A Yes, we did have, but we then had no feeling for this increase in water volume because it didn't really affect production.

Our big effect on production occurred during the three month shut-in for pipeline curtailment. Evidently at that -- that was the point in time that reservoir essentially was still very new, Mr. Stamets, still had very good energy and could handle the water problem with the production rate as indicated.

However, during the longer shut-in period the inclusion -- intrusion of produced water into the gas filled porosity evidently greatly affected the producing capacity of the well insofar as gas production to allow it to produce water.

MR. BRANNON: May I say something?

MR. CARR: It's Mr. Brannon.

MR. STAMETS: Okay, just speak up for the record and --

MR. CARR: We'd like for him to be able to --

MR. STAMETS: -- yes, you may.

MR. BRANNON: My name is Richard Brannon. I'm the son of M. J. Brannon, the operator.

In the simplest way to look at it, before the shut-in, the three month shut-in, we did not know the water problem -- it would occur. The well's in tight sand formation, low permeability, and with the frac that was put on it, it's obvious that we fraced into somewhat of a water producing zone, or not a zone, because it's in the lower perforations. We didn't even know that those had a water content.

So when we shut the well in, the water was migrating from the lower gas and water producing perforations in the Dakota into the drier gas zone and when we made the attempt with the cement retainer to shut off the water it shut it off enough to get the production back on, but we're still having channeling through the fractured formation of the water from the lower perforations, and that's, as Mr. Walsh has said, we discussed possibly doing a squeeze to shut off any channel coming up in our gas producing zone, but after talking to several operators that have attempted it, it's about one in ten that it will work

and in fact Southland Royalty lost four out of five wells attempting to do it.

Q When was this well completed initially?

A In 19 -- around October, September/October, 1981.

MR. BRANNON: It's first date of production was 1982.

MR. STAMETS: It's a relatively new well.

A Oh, yes, yes. The initial production after tying with the pipeline was January, 1982.

MR. BRANNON: I think the decline curve clearly shows the permeability damage occurred from the water influx.

MR. STAMETS: Okay, thank you.

Are there any further questions of this witness? He may be excused.

Anything further in this case?

The 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 was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

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

_____, Examiner
Oil Conservation Division