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

19 March 1986

DIVISION HEARING

IN THE MATTER OF:

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| Application of Exxon Corporation, USA, for downhole commingling, Eddy County, New Mexico. | CASE 8858 |
| and | |
| Application of Exxon Corporation, USA, for an unorthodox gas well location, Eddy County, New Mexico. | CASE 8842 |

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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# I N D E X



# E X H I B I T S

I N D E X CONT'D

MR. CATANACH: Call next Case 8858.

MR. TAYLOR: The application of Exxon Company, USA, for downhole commingling, Eddy County, New Mexico.

MR. CARTANACH: Are there appearances in this case?

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

I have three witnesses to be sworn.

Before we begin this case I would request that Case 8842 be consolidated for hearing with Case 8858, since they are interrelated.

MR. CATANACH Okay, Case 8842 will be consolidated.

Are there other appearances in this case?

Will the witnesses stand and be sworn?

(Witnesses sworn.)

MR. BRUCE: Before we begin, Mr. Examiner, in Case 8858 the applicant is named Exxon Company, USA, and that should be Exxon Corporation.

I don't know if that will have to be readvertised or not.

MR. CATANACH: I'll look into that, Mr. Bruce, and I'll let you know about that.

CARTER D. COPELAND,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Copeland, will you please state your full name, city of residence, occupation, and employer?

A My name is Carter D. Copeland. I'm from Andrews, Texas. I'm an engineer for Exxon Corporation.

Q And have you previously testified before the OCD?

A No.

Q Will you please state your educational and work background?

A I have a Bachelor of Science in mechani-

cal engineering from the University of Michigan in 1982.

Since then I've worked for Exxon for approximately 2-1/2 years as a reservoir engineer, mostly in southeast New Mexico and the area surrounding Andrews, Texas.

For the last year I've been a subsurface completion engineer, again for those same two primary areas, and in particular, I'm a completion engineer for the Mary Federal No. 5.

Q And are you familiar with Case 8858 and the engineering matters related to that case?

A Yes.

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

MR. CATANACH: Mr. Copeland is considered qualified.

Q Mr. Copeland, will you please briefly state what Exxon seeks in Cases 8858 and 8842?

A In Case 8858 Exxon seeks authority for the downhole commingling of production from the Upper Penn and Cisco Canyon formations in the Undesignated Sheep Draw Strawn Gas Pool in the wellbore of the Mary Federal Well No. 5, which is located 790 feet from the south line, 1829 feet from the west line of Section 11, Township 23 South, Range 25 East.

In Case 8842 Exxon seeks authority to reorient the proration unit of the Mary Federal Well No. 1, which is located is 1924 feet from the north line, 651 feet from the east line of Section 11, Township 23 South, Range 23 East, -- excuse me, the east half of Section 11 is currently dedicated to the Mary Federal No. 1 and Exxon desires to dedicate the north half of Section 11 to the well.

This reorientation will result in an unorthodox well location for which Exxon also seeks approval.

My testimony relates to Case 8858. A subsequent witness will address Case 8842.

Q Will you now please refer to the land plat marked Exhibit Number One and discuss it for the Examiner?

A Exhibit Number One is a 1-to-4000 base map of the Sheep Draw area of Eddy County, New Mexico.

Exxon's acreage is noted in yellow. The production map indicates the zones of last production in the Pennsylvanian formation.

The orange are Morrow completions; the blue are Strawn completions; and the green are Upper Penn, what we refer to as Cisco Canyon.

The Mary Federal No. 5 in particular is in Unit N of Section 11, Township 23 South, Range 25 East.

Q Would you please now refer to the well-

bore diagram marked as Exhibit Number Two and the cement bonding log marked as Exhibit Three and discuss that?

A All right. Exhibit Number Two is a current wellbore configuration of the Mary Federal No. 5 and I'd like to give a chronology of how we arrived at this configuration.

This well was originally proposed as a Morrow well; however, we experienced significance gas influx when we reached the depth of approximately 9800 feet. We were unable to increase mud weight because of lost return problems in shallower horizons.

Drilling continued to a depth of approximately 10,395 feet. By this depth the gas influx became severe enough to create a serious well control problem.

Because of the worsening well control safety hazard, we elected to set 7-inch casing at 10,395 and test the interval currently producing gas into the wellbore. The well would later be deepened to test the Morrow.

Because of the gas influx a cement bond log was run to check the cement integrity. The log indicated that there may be insufficient bonding to contain completion treatments.

Our reservoir engineers and geologists decided to test the Strawn interval from 9916 to 10,349 based on similar Strawn completions and cased hole log ana-

lysis.

This interval was perforated with 261 shots and tested 750 MCF a day at 440 pounds flowing tubing pressure.

The well was then acidized with 13,050 gallons of 15 percent hydrochloric acid. Our diversion technique was not successful and the acid evaluation logs indicated that a significant part of the interval was not stimulated.

To help improve the current load recovery, the well was treated with liquid CO2 and a surfactant.

The well was the reacidized with 13,000 gallons of 15 percent hydrochloric acid with a slightly different diversion technique. Although the diversion technique was more successful, the acid evaluation logs indicated there may be a channel from the Strawn to the Upper Penn.

A temperature survey was run after a 48-hour shut-in period. A temperatur anomaly from the Penn confirmed the channel.

I'd now like to present and discuss the cement bond log, Exhibit Number Three. I believe you all have one in your packet.

The bond log is a sonic tool that induces a ringing sound in the pipe. This ringing sound, where the

pipe is well bonded it does not ring.

Where you have low amplitude of this ringing noise, you have better bonding. Bonding is noted on the log in the middle of the log in the dark colored sections, as an example, from 10,040 feet to approximately 10,070 feet there may be good cement bonding; however, the bulk of the wellbore does indicate that there is poor bonding to the wellbore.

The temperature surveys that we ran are Exhibit Number Four. What you see in Exhibit Number Four in the lower half of the logs is an after acid log evaluation two hours after we ran the acid treatment.

You will note that at approximately 9900 feet there is a packer anomaly, a packer anomaly that is typical of these log evaluations. The bulk of the treatment, we feel, was in the lower third of the perforations at approximately 10,300 feet with some minor treatment at approximately 9950.

The second log in the lower half is the second after acid log evaluation, again two hours after the second treatment.

You will notice here that there is no packer anomaly at approximately 9900 feet and that there is a signficant break in the curve at approximately 9800 feet.

Based on this we feel that there was a

channel created by the second acid treatment up to 9800 feet.

You'll notice on the upper section of your log there is a base temperature log and a 48-hour shut-in temperature log. You'll notice significant cooling in the lower portion of the wellbore at approximately 10,300 feet. This -- this cooling effect is because of gas entering the wellbore. The base temperature log was run just after the well was perforated. The 48-hour shut-in was after both completion treatments.

The major anomaly in the 48-hour shut-in shows significant cooling in the lower part of the well at approximately 10,300 feet.

The next most significant anomaly again is at 9800 feet.

We feel that this confirms the channel that we suspected from our first after acid evaluation.

At this point in the completion we do not feel there is a reasonable chance to repair the channel because of the cement bonding that we see in the well.

We'd like to now present our risk assessment of what we feel we could possibly expect. This is Exhibit Number Five.

If we squeezed the channel we feel there may be a 25 percent chance of squeezing the channel, reper-

forating the Strawn, reacidizing, and the survey indicates that we have successful isolation. no further stimulation work at that time would be necessary.

There is another 25 percent chance that we squeeze the well that we squeeze the well, survey indicates successful isolation after reperforating and reacidizing, but because of the cement squeezing operations we feel we have may have the problem of having to fract the well.

If we have to frac the well, we don't feel that the cement job from the repair work would be able to contain the frac, and you'll notice that that results in approximately a 20 percent chance of breaking down this channel again, except this time we will now have propped it with a sand, thereby creating a downhole commingled situation that we will not be able to repair.

There is a 5 percent chance that the fract will be successfully contained.

We also feel that there's no better than a 50 percent chance that a squeeze will not be successful in any way, shape, or form, and that we will be exactly where we are today after spending approximatelys $145,000.

At the bottom of the page you'll notice a summary of the successful isolation of the Strawn, which equals 30 percent and the unsuccessful isolation of the Strawn, which is 70 percent.

As an example of reservoir damage that we feel we have seen in the past from squeeze operations, we'd like to discuss Exhibit Number Six. The following is an example of Exxon unsuccessfully attempting to restore production from a zone which was squeezed. This example shows how waste can result from squeeze operations. These same squeeze operations would be required in the Mary Federal No. 5 to repair the channel if commingling is not approved.

The well is the New Mexico DC State No. 1 in Section 18, Township 19 South, Range 29 East, Eddy County, New Mexico.

The New Mexico DC State No. 1 was completed in May, 1982, for 531 barrels of oil per day, 65 barrels of water per day, from perforations Exxon believed to be in the Cisco Canyon formation.

The NMOCD disagreed with the selection of formation tops and found the top eleven feet of the perforations were actually in the Wolfcamp formation, thereby commingling two formations in the wellbore.

A production log was run in the hope that it would show an insignificant amount of production coming from the perforations in question. Had this been the case the NMOCD would likely have given administrative approval to commingle the wellbore.

However, the log showed that 8 percent of

the total flow stream was coming from the interval in question.

After reviewing the log, the NMOCD Chief Engineer advised that he could not support administrative approval for downhole commingling; therefore, an attempt was made to isolate the Wolfcamp by lowering the packer assembly in the well below the Wolfcamp perfs to temporarily abandon the Wolfcamp zone until the Cisco Canyon depleted. This attempt failed due to behind pipe communication.

An attempt was then made to squeeze the Wolfcamp perforations. During the squeeze operations, perfs below the bridge plug communicated with the Wolfcamp perfs. After drilling out, the Cisco Canyon had to be reperforated and acidized, the well produced only 44 barrels of oil per day and 54 barrels of water per day after the acid job.

It is unlikely that the majority of the production was coming from the Wolfcamp perfs as a spinner-type production log indicated only about 8 percent of the total flow coming from the Wolfcamp perfs.

Also, the well did not produce any significant volume prior to the squeeze job so it is unlikely that the Cisco Canyon was depleted.

In addition, the better porosity zones are in the Cisco Canyon. It is suspected that the Cisco Canyon interval was damaged during the squeeze operation and

the acid job failed to clean it up.

An acid frac was then attempted to frac through the formation damage. The well produced only 65 barrels of oil and 113 barrels of water after the acid frac.

The acid frac did improve the productivity but did indicate that there was still substantial reservoir damage based on the production rates.

The production after the initial completion was 531 barrels of oil per day. After the squeeze cementing operations, reacidizing, and acid fracing, we obtained only 65 barrels of oil per day production.

We conclude from this that substantial reservoir damage occurred from cement squeezing the Cisco Canyon. Considerable expense was incurred with several unsuccessful attempts to repair this damage. Waste of hydrocarbons occurred due to the cement squeezing operations.

Q What will be the proposed wellbore configuration if downhole commingling is approved?

A Exhibit Number Seven is what we -- how we propose to downhole commingle the Upper Penn with the Strawn.

As you will see, we propose to set another permanent packer in the well at approximately 9600 feet. The lower permanent packer will be open. We will perforate the Upper Penn and produce both zones from beneath

the one permanent packer.

Q In your opinion, Mr. Copeland, will the granting of the application in Case Number 8858 be in the interest of conservation, the prevention of waste, and protection of correlative rights?

A Yes, I do.

Q And were Exhibits One through Seven prepared by you or taken from Exxon's company files?

A Yes, they were.

MR. BRUCE: At this time, Mr. Examiner, I move the admission of Exhibits One through Seven.

MR. CATANACH: Exhibits One through Seven will be admitted in evidence.

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

CROSS EXAMINATION

BY MR. CATANCH:

Q Mr. Copeland, how did the gas influx problem originate? Was there fluid in the hole (not clearly understood?

A As you'll notice on Exhibit Number Two, there's a note there that the mud weight at TD was 10.4 pounds per gallon. That's in the drill pipe. The gas, we

believe, was bleeding in from the formation. We were unable to get it any higher than that to contain the gas influx because of lost return problems that we suspected up the hole in either the Bone Spring or, you know, in the Bone Spring.

Q Mr. Copeland, are you prepared to address how the production figures will be arrived at for both zones?

A A later witness will address this.

Q That's fine.

MR. CATANACH: We have no further questions at this time.

JIM BARTEL,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q Would you please state your name, city of residence, occupation, and employer?

A My name is Jim Bartel. I live in Andrews, Texas. I work as a geologist for Exxon Corporation.

Q And have you previously testified before the OCD as a geologist?

A No.

Q Would you briefly describe your educational and work background?

A I received a Bachelor of Science degree in 1977 in earth science from Central Missouri State University.

I received a Master of Science degree in 1981 in geology from Western Michigan University.

I've been employed by Exxon since 1981 as a production geologist. For the past one and a half years I've worked as a production geologist in Eddy County, New Mexico, mapping prospects primarily in Pennsylvanian formations.

Q And are you familiar with the geology in the Mary Fed No. 1 and the Mary Fed No. 5 Wells?

A Yes.

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

MR. CATANACH: Mr. Bartel is considered qualified.

Q Would you please refer to Exxon Exhibit Number Eight and describe the Pennsylvanian geology in the area of interest?

A Exhibit Number Eight is a cross section. The attached cross section shows two wells, the Exxon Mary Federal No. 1 to the far left, was formerly the Hanagan

Sheep Draw No. 1, and it's on the NMOCD Pennsylvanian stratigraphic cross section, Eddy County, New Mexico, B-B', as Well No. 18.

Three formation tops were taken from the NMOCD cross section, Upper Penn, Strawn, and Atoka.

The well on the right is the subject well, the Exxon Mary Federal No. 5. The three formation tops are correlated from the Mary Federal No. 1 and the Mary Federal No. 5, all of which -- excuse me -- current perforations are indicated on the Mary Federal No. 5, all of which are within the Strawn formation.

The proposed additional perforations are also indicated located stratigraphically within the Upper Penn formation.

Deposits of the Strawn formation are composed of interbedded limestones, shales, and sandstones. Most of the gas production that has been established has been from the limestones which were deposited as carbonate shelf sediments.

The Upper Penn sediments reflect a continuation of limestone and shale deposition similar to the Strawn formation.

In the Mary Federal No. 5 limestons of the Upper Penn formation locally thicken and are possibly gas productive.

The index map shows the locations of both wells on the cross section plus a third wells, the discovery well for the White's City Pennsylvanian Gas Pool, the Gulf Oil Corporation Federal Estel AD No. 1, located in Section 29, Township 24 South, Range 26 East.

This pool was formed by Case Number 2157, Order No. R-1857, and classified as a gas pool for Pennsylvanian production.

The Pennsylvanian in this case includes the Upper Penn, Strawn, Atoka, and Morrow formations. The discovery well, initially completed only in the Strawn formation. It was later recompleted to the Atoka and Morrow formations. Subsequent wells have completed in Strawn, Atoka, or Morrow formations.

In the White's City Pennsylvanian Pool Gas produced simultaneously from more than one Pennsylvanian formation has not resulted in damage or waste. No damage or waste is anticipated if gas production from the Upper Penn and Strawn formations are commingled in the Mary Federal No. 5.

I'd like to submit this geologic summary as Exhibit Number Nine.

Q In your opinion, Mr. Bartel, will the granting of the applications bein the interest of conservation and the prevention of waste?

A Yes.

Q And were Exhibits Eight and Nine prepared by you or under your direction?

A Exhibit Nine was prepared by me. Exhibit Eight was prepared by another Exxon geologist. I have reviewed the data and concur with his interpretation.

MR. BRUCE: At this time, Mr. Examiner, I move the admission of Exhibits Eight and Nine.

MR. CATANACH: Exhibits Number Eight and Nine will be admitted into evidence.

MR. BRUCE: No questions of this witness.

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

JOHNNY W. JORDAN,

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

DIRECT EXAMINATION

BY MR. BRUCE:

Q Mr. Jordan, would you please state your full name, city of residence, occupation, and employer?

A My name is Johnny W. Jordan. I work for Exxon Corporation as a reservoir engineer in Andrews, Texas.

Q And have you previously testified before the OCD as an engineer?

A Yes, I have.

Q And are you familiar with the engineering matters involved in both Cases 8858 and 8842?

A Yes.

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

MR. CATANACH: Mr. Jordan, when was the last time you testified before the Division?

A Four weeks ago.

MR. CATANACH: Thank you. Mr. Jordan is considered qualified.

Q Mr. Jordan, please refer to Exhibit Number Ten and discuss its contents for the examiner.

A Exhibit Number Ten shows a Horner plot that was used to calculate the bottom hole pressure on the Mary Federal No. 5. The calculated bottom hole pressure in the Strawn is 4201 pounds at a depth of 10,200 feet, based on the build-up calculations in which this Horner plot was used.

It should be noted that an isolated bottom hole pressure measurement on the Strawn is not likely due to communication problems; however, build-up analysis indicates no cross flow between the two zones because no

anomalies were seen during the build-up test.

Also the build-up analysis indicates there are not any abnormally high pressure stringers present in either zone. If there were any abnormally high pressure stringers present it would have been seen in the build-up test.

Q Would you now refer to Exhibit Number Eleven, the OCD Form C-122, and discuss its contents?

A Exhibit Number Eleven is Form C-122 for the calculated absolute open flow test. The final flow rate reported on this form was 912 MCF per day at a tubing pressure of 2665 pounds. The calculated absolute open flow rate is 3.73-million cubic feet per day.

At this time I'd like to address the problem of determining a formula for the allocation of production to each of the proposed commingled zones.

Exxon is unable to develop a formula for the allocation of production because the Upper Penn has yet to be perforated. Once the Upper Penn is perforated an allocation formula will be developed from the difference between the absolute open flows.

The difference between the current CAOF, which is Exhibit Number 11, and the COF taken after the Upper Penn is perforated will be assigned as a fraction of allocated -- as a fraction allocated to the Upper Penn.

The remaining fraction will be assigned to the Strawn.

It should be noted that the value of the commingled production will not be less than the sum of the values of the individual strings. The gas from either zone is yet to be contracted. No NGPA effects are anticipated due to the commingling of the production. Therefore the value of the commingled production will not be less than the value of the individual strings.

Q Will you now refer to Exhibit Number Twelve and discuss it?

A Exhibit Number Twelve is a gas analysis of the hydrocarbon gas from the Mary Federal No. 5. Exxon does not anticipate any problem with the formation damage from the commingling of the formation waters. No water production is anticipated from either zone based on the fact that no significant water production has been produced from the Strawn or the Upper Penn in the area.

Currently the load water has yet to be completely recovered in the Mary Federal No. 5.

Q Please now move on to Exhibit Thirteen.

A Exhibit Thirteen is a Form C-116, the gas/oil ratio test. That was submitted to the NMOCD. The water production that was made during this 24-hour test was entirely load water. As stated before, the load water has

yet to be completely recovered.

The gas rate reported during this 24-hour test was 1,000,067 cubic feet of gas at a 746 pounds tubing pressure, and the water production reported was 63 barrels.

Q Would you please now refer back to the land plat marked as Exhibit Number One and describe the working interest ownership and the correlative rights in Section 11 and the offsetting acreage?

A The acreage colored yellow is Exxon's acreage. As can be seen, Exxon owns 100 percent of Section 11, where the Mary Federal No. 5 is located. This section is 100 percent Federal acreage.

Exxon owns the acreage to the south, southeast, east, northeast, and to the west.

Anadarko owns the acreage to the southwest. HNG and Northern Natural Gas own the acreage to the north.

Pogo Production owns the acreage to the northwest.

All the offset acreage is Federal acreage except to the west, northwest, and north, where it is State acreage.

Because of Exxon's ownership to the south, east, and west, and the acreage is 100 percent Exxon and Federal, no party's correlative rights would therefore

be violated.

Q And have the offet owners, the Federal government and the OCD District Office, been notified of Exxon's proposed downhole commingling?

A Yes, they have.

Q And were they sent a copy of the February 12th, 1986 letter?

A Yes. These parties were sent copies of our February 12th, 1986 letter with attachments, and copies of certified return receipts are submitted as Exhibit Number Fourteen.

Q Will you please now move forward to Exhibit Number Fifteen and discuss the economics of the proposed downhole commingling?

A Based on the costs and the risks presented on Exhibit Number Five, Exxon cannot economically justify an attempt to repair the channel and return the Strawn to production. The reserve estimate used in these economics was .3 BCF of gas. The reserve estimate is based on several equivalent Strawn completions in the area.

If downhole commingling is not approved, Exxon plans to squeeze the current Strawn perforations without attempting to restore the Strawn to production, and recomplete it into the Upper Penn interval.

Downhole commingling has been requested

to prevent the waste of an estimated .3 BCF of gas of Strawn reserves.

Q Would you please now refer to Exhibit Number Sixteen and discuss the current orientation of the units dedicated to the Mary Fed No. 1 and Mary Fed No. 5 Wells and the reasons for this orientation?

A Exhibit Number Sixteen shows how the Mary Federal No. 1 and the Mary Federal No. 5 proration units are currently oriented in Section Number 11.

The Mary Federal No. 5 was originally drilled to be completed in the Morrow formation but because of high gas volumes and lost circulation zones up in the hole casing was set at the base of the Strawn.

It was not anticipate that Strawn would be completed in the Mary No. 5 before it was depleted in the Mary No. 1, therefore avoiding the problem of the proration unit orientation.

The Mary Federal No. 1 is currently producing 7 MCF per day.

The Mary Federal No. 5 was drilled in the southern portion of the section for geological reasons. Its proration unit was laid down so it would not be an unorthodox location.

Q Would you please refer to Exhibit Seventeen and discuss the proposed orientation of units sought by

Exxon?

A Exhibit Number Seventeen shows the proposed proration unit orientation. It is being requested that the proration unit for the Mary Federal No. 1 be changed from the east half of Section 11 to the north half of Section 11.

The Mary Federal No. 1 was drilled and completed in 1973. This will make the location for the Mary Federal No. 1 an orthodox location.

If you stood up or laid down the proration units in Section 11, either the Mary Federal No. 1 or the No. 5 would be unorthodox. Both would be unorthodox to Exxon, though.

Exxon owns 100 percent of the mineral rights in Section 11 and the section is 100 percent Federal acreage; therefore, since the lessee and the lessor of the section are identical, no correlative rights will be violated.

Q Okay. Has Exxon notified the offset operators to the north or the east of the proposed unorthodox location for the Mary Fed No. 1 Well?

A Yes. Copies of the waivers signed by Pogo Producing Company and HNG in the north are submitted as Exhibit Number Eighteen.

The certified return receipts by which

the waivers were sent to Pogo and HNG are submitted as Exhibit Number Nineteen.

Q In your opinion will the granting of the applications in both these cases be in the interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes.

Q Were Exhibits Ten through Nineteen prepared by you or compiled from Exxon's company records?

A Yes.

MR. BRUCE: At this time, Mr. Examiner, I move the admission of Exhibits Ten through Nineteen.

MR. CATANCH: Exhibits Ten through Nineteen will be admitted as evidence.

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

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Jordan, the proration unit for the Mary Federal No. 5, why was that chosen to be a laydown proration unit as opposed to the west half? Is it because of the location for the well?

A No. It was originally proposed as a Mor-

row completion. Since the Mary Federal No. 1 was a Strawn completion, we had good geological reasons for trying to get as far south as legally possible and so therefore to get a legal location we laid down the proration unit.

Q Mr. Jordan, referring to Exhibit Number Eleven, and Exhibit Number Thirteen, the bottom hole pressure test and the multipoint back pressure test, when these tests were done, was there not communication in the wellbore at that time?

A Yes, there were.

Q You stated that none of the production was coming from the Penn?

A No. There is production coming from the Penn. The amount is unkown. You know, we can't get an isolated pressure or a 4-point from the Strawn interval because of the communication. It's hard to put a quantity number on how much production is coming from the Penn. I don't feel lilke it's a significant amount of gas volumes, and for -- as far as pressure goes, like I said before, if there was a high pressure stringer present or some sort of cross flow in the wellbore, it would have been seen in the build-up test.

Q So your recommended allocation formula isn't really going to be accurate.

A It's going to be as accurate as possible with what -- the situation that we have.

Q Mr. Jordan, are the royalty interest owners and the overriding royalty interest owners the same for both zones?

A That's correct, they are.

Q Mr. Jordan, are these prorated gas pools?

A I believe they are. I believe they are.

Q Mr. Jordan, are there any other wells completed in the area that you may be able to obtain production figures from that may -- that you may be able to get a more accurate, say, allocation formula?

A There's other wells in the area that are producing out of the Strawn. As far the Upper Penn goes, it's pretty limited in the area. In fact, there's only one, I believe, on the plat that we showed earlier and it was very insignificant amount of gas.

We feel like our well's much better in the Upper Penn. We hit some sort of isolated stringer that's not in any other wellbores, so I don't feel like we can use data from offset wells, at least within several miles.

Q But you do have some production figures from the Strawn formation.

A Yes, we do, and that's, you know, I've used those production figures to come up with my reserve estimates for my economics, so we do have a reasonable

amount of Strawn production figures.

Q Is the initial production figures that you arrived at from these tests, are they anywhere near any of the initial production figures on any of the other Strawn wells in the area?

A Yes, I believe they are. You know, there's a pretty big range of Strawn completions in the area, you know. There's several quite a bit higher and several quite a bit lower. Some of them had high COF's, ended up not cuming a tremendous amount of gas volume so it makes me believe that there are somewhat limited reservoirs and we feel like, you know, we reasonably came up with a reserve estimate for the Strawn.

Q Mr. Jordan, can you possibly take a look at some of the wells in the area and provide us with some initial production figures from the Strawn formation?

A Yeah, we can -- I've got that information here now.

Q Do you have it?

A I have some. If you take a look at Exhibit Number One, I believe, that plat of production. Okay, the blue dots are the Strawn production. In Section Number 6 the Strawn was completed in 8-75; had an IP of a CAOF of 15-million cubic feet per day. Its cum was 300,000,000 cubic feet of gas. Currently the well is shut in.

Section Number 12 --

Q Sorry, would you back up a second?

A Okay, sure.

Q The initial potential was 15-million a day?

A That's correct, CAOF.

Q Okay, go ahead.

A In Section Number 12 the Strawn was perforated in 11-84. Its IP was 1.4-million cubic feet of gas per day. It's cum is 127-million cubic feet of gas per day and its current production is 1 -- 109 cubic feet per day.

Okay, in Section Number 11, the Mary No. 1 that we have, the Strawn was shot 1-85. It's IP flowing was 1.4-million cubic feet of gas. Its cum is 15-million cubic feet of gas and its current production is 7 MCF per day.

And in Section 22 the Strawn was shot in 11-77. Its IP, its calculated absolute open flow was 4.2-million cubic feet of gas per day. Its cum was 223-million cubic feet of gas. Its current production is 52 MCF per day. This is the one I feel like is the most representative of a look-alike case in our situation.

Q It looks to me like the AOF on your Mary Federal No. 5 may be a little high for that -- for that area.

A We, you know, because of the gas problems we had while we were drilling the well, feel like we have a much better well than some of the offset wells. You know, the Strawn production can come and go very quickly in this area, the reservoir, and -- but we really can't say how good ours is compared to offset wells because of logs. We had to set pipe before we get to run open hole logs, so we did not, we just got a cased hole neutron and because of gas effect, we -- we really don't know what kind of porosity we have.

If there's a big problem with the allocation, I think it would be found out as soon as we perforated that upper interval, ran another CAOF test, and if there was a considerable amount of difference, then you'd feel like there was not a significant amount of production from that Upper Penn, but if they ended up being the same, then you'd feel like that yes, you were in -- you know, there was a substantial amount of communication between the two zones.

I think once we get the second CAOF we would know, you know, if -- what kind of situation we had.

Q If the test on the Upper Penn indicates that there's not a substantial difference between the two, how do you then propose to allocate?

A Well, something we've considered and it's required by the Commission once we have that situation, I think a production log would be run because both zones will

be flowing. We would have to get approval by our management but if it is required by the Commission, we could run a production log and we feel like we could get a reasonable allocation from that.

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

MR. BRUCE: I have one last thing, Mr. Examiner.

As I mentioned at the outset in Case 8858, the proper name of the applicant was Exxon Corporation rather than Exxon Company, USA.

The application for Case 8858 was made to the OCD by a letter from Exxon dated February 12th, 1986. In attachment to the letter Exxon's name is given as Exxon Corporation and therefore Exxon hopes and believes that readvertisement of these cases is not necessary.

MR. CATANACH: Thank you.

Is there anything further in Case 8858 or Case 8842?

If not, they 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 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. 9858, 9842 heard by me on March 19, 1986.

David R. Catanach, Examiner
Oil Conservation Division

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

5 March 1986

DIVISION HEARING

IN THE MATTER OF:

Disposition of cases called on Docket No. 8-86 for which no testimony was presented.

CASE 8836, 8837, 8838, 8839, 8842, 8845, 8846, 8848, 8849, 8826.

Transcript in Case 8836

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

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