STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
18 January 1984

EXAMINER HEARING

IN THE MATTER OF:

Application of Northwest Exploration Company for an exception to the special pool rules for the Gavilan-Mancos Oil Pool, Rio Arriba County, New Mexico.	CASE 8042

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division:	W. Perry Pearce, Esq. Legal Counsel to the Division State Land Office Bldg. Santa Fe, New Mexico 87501
For the Applicant:	William F. Carr, Esq. CAMPBELL, BYRD, & BLACK P.A. Jefferson Place Santa Fe, New Mexico 87501

A P P E A R A N C E S

For Dugan Prod. &
Jerome P. McHugh: W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
P. O. Box 2265
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. STOGNER: We'll call next Case Number 8042.

MR. PEARCE: That case is on the application of Northwest Exploration Company for an exception to the special pool rules for the Gavilan-Mancos Oil Pool, Rio Arriba County, New Mexico.

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

I have one witness who needs to be sworn.

MR. KELLAHIN: If the Examiner please, I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of Dugan Production Corporation and Jerome P. McHugh.

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

Do you have witnesses, Mr. Kellahin?

MR. KELLAHIN: No, sir.

(Witness sworn.)

LAWRENCE VAN RYAN,

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 Lawrence Van Ryan and I reside in Littleton, Colorado.

Q By whom are you employed and in what capacity?

A I'm employed by Northwest Exploration Company as their Vice President of Operations.

Q Have you previously testified before this Commission or one of its examiners and had your credentials accepted and made a matter of record?

A Yes, I have.

Q And how were you qualified at that time?

A I was qualified as a professional petroleum engineer.

Q Are you familiar with the application filed in this case on behalf of Northwest Exploration Company?

A Yes, I am.

Q Are you familiar with the subject area?

A Yes.

MR. CARR: Are the witness' qualifications acceptable?

MR. STOGNER: They are.

Q Mr. Van Ryan, would you briefly state what Northwest seeks with this application?

A Northwest seeks to have the north half of Section 26, Township 25 North, Range 2 West, simultaneously dedicated to its Gavilan No. 1 Well and its Gavilan No. 1-E Well.

It also seeks to have downhole commingling approved for the Gavilan No. 1 and for the Gavilan No. 1-E in the Gallup and Dakota formations.

Q Would you please provide the examiner with the background for this hearing?

A The background for this hearing is based on Order No. R-7407 in which the Gavilan-Mancos Oil Pool was established by the Commission on the 20th day of December, 1983.

In that order, paragraph two says that any well presently producing from the Gavilan-Mancos Oil Pool which does not have a standard 320-acre proration unit and approved nonstandard proration unit, or which does not have a pending application for a hearing for such a unit by March 1st, 1984, shall be shut in until a standard -- nonstandard unit is assigned to the well.

Since we have two wells currently in the north half of Section 26, we do not have a standard 320-acre

proration unit for each well, therefore we are here to acquire a simultaneous dedication for these wells.

And a little background into this hearing, at the same time this hearing was called Northwest Pipeline had requested a downhole commingled pool be established between the Gallup and Dakota formations here. This was not granted by the order of the Commission, and since we have a marginal zone in the Dakota formation, we're here to request downhole commingling.

Q Would you please refer to what has been marked for identification as Northwest Exhibit Number One, identify this and explain what it shows?

A Exhibit Number One is a 9-section plat showing the north half of 26 with the location of the Gavilan No. 1 and the Gavilan No. 1-E Wells.

It also shows the lease ownership for all the contiguous 320-acre tracts surrounding this north half of Section 26.

Q Would you now refer to Exhibit Number Two?

A Exhibit Number Two is a completion report for the Gavilan No. 1. There are two pages to this exhibit and the first page refers to the completion report for the Basin Dakota zone and the second page refers to the completion report for the, at that time, wildcat Gallup zone.

Q When was this well completed?

A This well was completed in March of 1982.

Q Will you now refer to Exhibit Number Three?

A Exhibit Number Three is a completion report for the Gavilan No. 1-E. Again, it is a 2-page exhibit. The first page refers to the completion report for the Basin Dakota zone in this well and the second page refers to the completion report for the Gavilan Gallup in the same well.

Q It appears to me that some changes have been made in this form in terms of the field or pool designation.

Could you explain that?

A We had submitted the form, as you can see, prior to being scratched out, and the Commission had changed this because we had erroneously indicated the information on here that was not correct.

Therefore the Basin Dakota is the proper pool for the top sheet and the Gavilan Gallup is the proper pool, as established by the Commission, for the second sheet.

Q And when was this well completed?

A This well was completed in July of 1983.

Q Would you now refer to Exhibit Number Four and review that for Mr. Stogner?

A Exhibit Number Four is a copy of the induction electric log in the Gavilan No. 1. We have shown on here all of the perforations on the righthand column with

tic marks. These show the perforations in not only the Gallup formation but also in the Dakota formation.

And they also show in the Dakota formation a bridge plug that was set at approximately 8073 feet to squeeze off perforations that had been attempted at a depth of approximately 8200 feet.

This zone was tested and it showed to be water wet and was plugged off.

Q Will you now refer to Exhibit Number Five?

A Exhibit Number Five is a similar type log for the Gavilan No. 1-E Well. Again in the righthand column we show the perforations with tic marks for both the Gallup zone and for the Dakota zone.

It should be noted in this well that we did not go on down and perforate the lower zones since they were wet in the Dakota formation.

Q Mr. Van Ryan, would you now review Northwest's Exhibit Number Six for the Examiner?

A Exhibit Number Six a production history from date of first delivery for the Gavilan No. 1.

The well was first delivered on June the 2nd, 1982. The production is broken down on a day to day basis, giving the number of hours a day that the well produced, the barrels of oil per day that the well produced, the barrels of water per day, the gas production in Mcf per day, and then we have included a remarks column, which is

important in this case because it gives some information about what zones were producing in the well.

We would point out on this that in 1983 Northwest was producing the Gallup zone only and then in the protesting of the Dakota zone we attempted to produce that zone for a period of time. It did flow and we do have good production figures here, which we'll use later in our exhibits.

Q Will you now review Exhibit Number Seven?

A Exhibit Number Seven is a similar type production history for the Gavilan No. 1-E. This well was first delivered on the pipeline on September the 2nd, 1983, and we show the same information here as we did for the Gavilan No. 1.

This well, since its first delivery, has only produced from the Gallup formation.

Q Are both of these wells only producing from the Gallup?

A Yes, at the present time.

Q And the two zones that you propose to downhole commingle are the Gallup and --

A Dakota formations.

Q Would you now refer to Exhibit Number Eight and review this for Mr. Stogner?

A Exhibit Number Eight is a New Mexico Oil Commission Form C-116 for the gas/oil ratio test for the

Gavilan No. 1. This was the test conducted in June of 1983, and it shows a GOR at that time of 9340 cubic feet of gas per barrel of oil.

Q And now review Exhibit Nine.

A Exhibit Nine is also the C-116 form. This is for the Gavilan No. 1-E and was run on the 10th month of 1983. It shows a gas/oil ratio of 3649 cubic feet of oil per barrel -- I mean of gas per barrel of oil.

Q Would you now go to Exhibit Number Ten and review this for Mr. Stogner?

A Exhibit Number Ten is our calculation of the State's allowable for the 320 acre spacing as set up in the Gavilan-Mancos Oil Pool.

What we have shown here is the top perforation for the Gavilan No. 1 at 6821 feet and the top perforation for the Gavilan No. 1-E at 6804 feet. By the State rules this falls in a depth bracket between 6000 and 6999 feet; 320-acre proration unit, which would be allowed to produce 702 barrels of oil per day by this allowable.

What we have further shown here is the limitation because these wells will exceed the 2000 to one GOR limitation for the State and in the first designation there we have shown a gas/oil ratio limitation being calculated from the C-116 forms that we showed, showed in the earlier exhibits.

Showing the combined production for the two wells in the north half of Section 26, they produced

together 143.7 barrels of oil per day, 904 Mcf of gas per day, which results in a GOR of 6291 to one. If you multiply that factor, the ratio of 2000 to 6291 times the 702 barrels of oil per day, you come up with an allowable of 223.2 barrels of oil per day.

Following that we have used our most recent production information, which is from December of 1983. The combined production for the two wells was 115.3 barrels of oil per day and 588 Mcf of gas per day. This resulted in a GOR of 5100 to one and will result in an allowable of 275.2 barrels of oil per day.

What we intend to show here is that our allowable, as calculated from the State rules, exceeds the production that both these wells are currently capable of.

If you will refer back to the combined production of December of 115.3 barrels of oil per day, our allowable would be 275; therefore we are not in a position to be able to overproduce this north half.

Q Would the correlative rights of any offsetting operator therefore be impaired by the proposed simultaneous dedication?

A No, they would not.

Q Would you now refer to Exhibit Number Eleven, identify this, and explain the reason for including it in this case?

A Exhibit Number Eleven is the communitization agreement that communitizes the gas production. It is

included to show that we have dedicated the north half of Section 26 and have produced the Gavilan No. 1, and subsequently the Gavilan No. 1-E, under this communitization agreement.

Q And under this communitization agreement the interest owners in the north half of this section have paid for these wells and shared in production therefrom.

A Under this and underneath the operating agreement, which is the next exhibit. They have approved that. The royalty owners and the working interest owners have all been signatory to the communitization agreement.

Q All right, will you now review Exhibit Number Twelve?

A Exhibit Number Twelve is the operating agreement for the north half of Section 26, which also includes an amendatory agreement which forms a working interest pool for all the north half of Section 26 in the Mesaverde, the Gallup, and the Dakota formations. Underneath this agreement all the working interest owners have paid their share of the cost of both wells and the distributions from the income of both wells have been distributed underneath this agreement.

Q Now if the application for simultaneous dedication is approved, does Northwest request a specific effective date for that order?

A We would request that the same effective date as for the Gavilan Gallup Pool be established, and that

would be March 1st of 1984.

Q Would this facilitate making royalty payments at the beginning of a month?

A Yes. This would be most convenient, since at this time the royalty payments will start to be made on a 320-acre tract rather than on 40-acre, as was the previous spacing for this area.

Q If this application to simultaneously dedicate the north half of Section 26 should be denied, what problems would result for Northwest Exploration as operator of the wells in the north half of this section?

A Underneath the current order of the Commission one of the wells would have to be shut in because we do not have a standard 320-acre for two wells.

The other problem there would be that we would have to recoup monies already paid out by Northwest Exploration to working interest owners in the well and we'd have to make some sort of adjustment as to how people paid the cost of the wells in the north half of Section 26.

Q Now, Mr. Van Ryan, I'd like to ask you a few questions concerning the downhole commingling portion of this case, and ask that you refer back to Exhibit Number One, which is the plat.

Are there other wells on this plat for which commingling authority has been approved by this Commission?

A Yes. In Exhibit One is the McHugh Janet

No. 1 Well. This well is currently downhole commingled by order of the New Mexico Commission. It produces from both the Gallup and Dakota formations.

Also, in Section 27 in the southwest quarter there is a case pending before the Commission, Case Number 8041, which is an application for downhole commingling of a completed well.

Q I would ask that you now refer back to Exhibits Four and Five, the logs, and use those to identify the zones which will be commingled.

A Again on Exhibit Four, we are attempting to commingle the Gallup and Dakota formations. The Gallup formation perforations are from a depth of 6821 feet down to a depth of 7562 feet, which are shown on the log, and we're attempting to commingle those with the Basin Dakota perforations which are from a depth of 7880 feet to a depth of 7910 feet. Excuse me, to 8026 feet.

In Exhibit Number Five the Gallup perforations are on that log from a depth of 6804 feet down to a depth of 7708 feet. The Dakota perforations are from a depth of 7822 feet to a depth of 7918 feet.

These are the zones that we are desiring to commingle downhole.

Q Are these zones flowing or being artificially lifted?

A These zones, the Gallup zones in both wells are currently flowing. The previous test of the

Dakota zone was a flowing test.

Q. Would you now refer to Exhibit Number Thirteen and review this for Mr. Stogner?

A. Exhibit Number Thirteen is a production curve for the Gavilan No. 1 Well. It shows the barrels of oil produced per month and Mcf of gas produced per month. And what we want to show here is listed at the top of this curve showing the various stages of this well and what we were doing, how we were trying to produce the well at various times.

We show on here that the early production of the well in 1982 we were prorated because the well was capable of producing in excess of its 40-acre allowable.

Starting at the first of 1983 we received a discovery allowable for this well, this pool, and that allowed us to produce the well at maximum rates until such time as we attempted to test the Gallup and Dakota together.

We did flow the Gallup and Dakota together for a test period to try and obtain a commingled rate, what a rate may be here. Subsequent to that we opened up the Dakota only and flowed it to obtain a valid production rate from the Dakota and now we're back to producing the Gallup only.

Q. And from this exhibit you can see what each of the zones you propose to commingle is capable of doing.

A. From this, and from the production

histories that we presented earlier, we can show in detail what each zone was capable of producing.

Q And from this information have you prepared an exhibit which shows how production can be allocated between each of the zones?

A Yes, we have.

Q Is that Exhibit Number Fourteen?

A Yes.

Q Would you review that now?

A Exhibit Number Fourteen is our proposed allocation of production, commingled production in this well. We are using production data from the Gavilan 1 since we have more valid production there, as shown by our previous exhibit.

What we have shown here is that the production data for 1983, when the Dakota zone was producing by itself, we produced an oil rate of 5.9 barrels of oil per day and a gas rate of 88.4 Mcf per day.

During the month of June, when the Gallup formation was producing by itself, and had been producing for a period of time for us to obtain a good rate, the oil production was 59 barrels of oil per day and gas production was 628.8 Mcf of gas per day.

What we've done here is shown a theoretical combined production rate, totaling up the oil rates and the gas rates here; combined totals would be 64.9 barrels of oil per day, 717.2 Mcf of gas per day.

Using these figures we go back to try to calculate a percentage of the total flow for the Gallup formation. We have shown that the Gallup formation would produce 91 percent of the total oil and would produce 88 percent of the total gas with a combined stream of flow.

Therefore we recommend with this exhibit that the oil production would be allocated 91 percent of the total flow to the Gallup formation and 9 percent to the Dakota formation; 88 percent of the gas production would be allocated to the Gallup and 12 percent to the Dakota formation.

Q And you recommend that these figures be incorporated into any order which results from this hearing?

A Yes.

Q Does Northwest have any bottom hole pressure data on the wells involved?

A We have cased hole drill stem tests that were conducted on the Gavilan No. 1-E in an attempt to find as valid a bottom hole pressure as we could.

Q Is that marked Exhibit Fifteen?

A Exhibit Fifteen is the drill stem test conducted on the Dakota zone in the Gavilan No. 1-E.

Q Would you review that for Mr. Stogner?

A The important information here is included on the data page, which is page number eight of the subject report. On that page it has an extrapolated pressure at a relative depth of 7772 feet for the Dakota forma-

tion, in which the bottom hole pressure was 3320 psia.

Q Would you now refer to Exhibit Number Sixteen and review this, please?

A Exhibit Number Sixteen is a drill stem test report for the cased hole drill stem test run on the Gavilan No. 1-E on the Gallup zone only.

The important information here is included on page three, which is a letter from the Johnson-MACCO people, which indicates that although the test was not successful, theyl were able to extrapolate the initial shut-in pressure obtained during this drill stem test and have extrapolated a bottom hole pressure for the Gallup formation of 2177 psia.

This is at a referenced depth of 1768 feet.

To equate the previous drill stem test to this zone, to equate them to both 6768 feet, the equivalent pressure of the Dakota formation at that depth, assuming a water gradient, would be 2888 psia.

Q Are the pressure differentials that you anticipate between the zones such that they would result in migration of hydrocarbons between the two zones?

A No, sir.

Q Are there -- are the fluids produced from the zones compatible?

A Yes, the fluids are.

Q Have you previously commingled the fluids?

A We have for a test period, as shown on the production curve for the Gavilan No. 1, commingled the production to obtain some sort of idea of what the well would produce and if it would produce, and we did not experience any problems with the commingling of the fluids.

Q Are the reservoir characteristics of these zones such that underground waste will not be caused by the proposed downhole commingling?

A Yes.

Q Is the ownership of both zones common?

A The ownership of both the Gallup and Dakota formations here is common, as shown by the communitization agreement and by the operating agreement.

Q And that is working interest as well as royalty interest?

A Yes, that is correct.

Q What are the volumes that are currently being produced from the Dakota?

A The Dakota formation is not currently producing in either well.

Q Without commingling authority will the economics -- will economics permit production from the Dakota?

A No. The Dakota formation production, as we have shown earlier, is approximately 6 barrels of oil a day and 88 Mcf of gas per day. For a well at this depth this is not economical production, and this zone would not

produced until such time as the Gallup zone would be depleted.

Q If this application is denied would reserves ultimately be left in the Dakota that ultimately -- or will be produced if the application is granted?

A More than likely they would be because it will take a number of years for the Gallup to deplete and therefore the Dakota zone would probably never produce.

Q And so granting the application will result in increased recovery of hydrocarbons?

A Yes, it will.

Q Will the value of the commingled production exceed the sum of the values of the production from each of the separate zones?

A Yes, it would.

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

A Yes.

Q Were Exhibits One through Sixteen prepared by you or compiled under your direction?

A Yes, they were.

Q Can you testify as to their accuracy?

A Yes.

MR. CARR: At this time, Mr. Stogner, we would offer Northwest Exhibits One through Sixteen.

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

MR. CARR: That concludes our direct testimony.

CROSS EXAMINATION

BY MR. STOGNER:

Q Sir, the completion report, the C-105, Exhibit Number Three, for the Gavilan No. 1-E shows a multiple completion of three zones. What happened to the third one?

A The third one, as you can see, was corrected by the District Commission Office to reflect the Gallup Gavilan zone and the Gallup formation was included with what was called the Greenhorn formation. That is on the second page of Exhibit Number Three.

Q Thank you, sir. What is the size of casing in the production string in both these wells?

A In the Gavilan No. 1-E we have 4-1/2 inch production casing and in the Gavilan No. 1 we have 4-1/2 inch production casing.

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

Are there any questions of this witness? If not, this witness may be excused.

I'm sorry, Mr. Kellahin, do you have any questions of this witness?

MR. KELLAHIN: No, sir.

MR. STOGNER: So he may be excused.

Mr. Carr, do you have anything further in this case?

MR. CARR: Nothing further.

MR. STOGNER: Does anybody have anything further in Case Number 8042 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 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. 8042, heard by me on January 18 1984.

Michael E. Stogner, Examiner
Oil Conservation Division