BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
June 26, 1963

EXAMINER HEARING

IN THE MATTER OF:	
Application of Compass Exploration, Inc. for an amendment of Commission Order No. R-2462, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks an amendment of Order No. R-2462 concerning the Largo Gallup Gas Pool to provide 320-acre gas well spacing and an increase in the maximum allowable for each spacing unit from 500 to 1,000 MCF per day.	Case 2842

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: We will call Case 2842.

MR. DURRETT: Application of Compass Exploration, Inc. for an amendment of Commission Order No. R-2462, Rio Arriba County, New Mexico.

MR. KELLY: Booker Kelly of Gilbert, White & Gilbert, appearing on behalf of Compass Exploration, Incorporated. I have Mr. Ted Stockmar of Colorado here and he will question the witness.

MR. STOCKMAR: Mr. Examiner, this is the application of Compass Exploration Company for an order to provide 320-acre

gas well spacing for the Largo Gallup Gas Pool and for a relocation of the present allowable so that each committed well on 320-acre spacing basis will be allowed to produce 1,000 MCF per day. You'll recall, although you were not the Examiner in the matter, that this case is a follow-up of Case 2761, which resulted in Order R-2462. That order separated this field from the South Blanco Tocito Pool and established the Largo Gas Pool as a new gas pool.

At the March 20, 1963 hearing in Case 2761 it was clearly indicated in the record there that it was not the intent or within the scope of that hearing to set special spacing regulations for that pool, but that pending the separation of the two pools the statewide order would simply apply until a more appropriate time for this hearing. I make this comment for the record in view of certain recent litigation or case law here, and this is not basically a request for a change of an established special field rule, but simply a normal approach to a new gas pool.

To shorten the hearing, we do intend to incorporate certain testimony and exhibits from Case file 2761 by reference, to the extent that you permit this. Although we are prepared to reintroduce those exhibits if they're deemed necessary.

We have two witnesses, and I ask that they be sworn.

(Witnesses sworn.)

MR. NUTTER: Mr. Stockmar, are you making a motion at this time to incorporate by reference the record in Case 2761?

MR. STOCKMAR: Yes, sir, to the extent that it's relevant to this pool.

MR. NUTTER: Is there objection to incorporation of the record of Case 2761 into Case 2842 by reference? The record in that case will be incorporated.

PETER J. FARRELLY

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. STOCKMAR:

Q State your name, address and employment.

A Peter J. Farrelly, 101 University Boulevard, Denver, Colorado, employed as Manager of Exploration and Production for Compass Exploration, Incorporated.

Q Have you previously testified before this Commission?

A Yes, I have.

MR. STOCKMAR: Do you wish further --

MR. NUTTER: No, the witness is qualified.

Q Are you the same Peter J. Farrelly in Case 2761 which has been incorporated by reference in this case?

A Yes, I am.

Q You now confirm and hereby adopt by reference your prior testimony and exhibits in this case insofar as they are relevant to this matter?

A Yes, I do.

Q Notwithstanding that, will you for this Examiner describe the Largo Gallup Gas Pool and the geology?

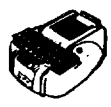
A The Largo Gallup Gas Pool is a Gallup sand development sitting Northwest-Southeast along the structural strike of the basin. The pool itself appears to be geologically to be defined on its eastern, undefined on the western. There are presently three wells that have penetrated the Gallup in the pool. They are completed as Gallup-Dakota duals. There has been no other subsequent drilling since the last case or anything that would appreciably change the exhibits that were presented then.

Q Are these structural matters shown in Exhibit No. 1 which was introduced in the case, incorporated by reference?

A Yes, they are.

Q Is the geology here generally similar to other Gallup Gas Pools that have been located in the state?

A It is a stratigraphic entrapment, the reservoir is a stratigraphic entrapment of hydrocarbons. It is similar and analogous to other gas pools in the basin.



Q Have you made any determination of certain geologic characteristic pay thickness, continuity of the reservoir and so on?

A From the study of the electric logs we have no core information. From the study of the electric log available, a maximum average of ten feet of net pay is given across the block. Also, from a study of the electric logs, a maximum average of 11% porosity is given. A water saturation from the study of induction electric log of 35%.

Q Can the gross pay thicknesses be determined from Exhibit No. 2?

A Yes, they can.

Q In the Case 2761?

A Yes.

Q What is the depth of the production formation of the Gallup?

A Penetrated the Gallup at average 6675 feet.

Q What is your opinion as to whether this field does constitute a common reservoir or common source of supply and continuity of the sand within it?

A From the correlation of the electric log and its analogy to the other Gallup pools, I would say it's a common source of supply and contiguous reservoir.

Q In the other capacities or work that you perform for your company, are you familiar with the ownership pattern in the immediate vicinity of the field?

A Yes, I am.

Q Would you describe that?

A The South Half of Section 3 and all of Section 4, with the exception of the Southwest, Southwest is all one base Federal lease. Southwest, Southwest of Section 4 is owned by International Oil Company. We have already started preliminary negotiations with them in the event that 320-acre spacing is accepted by the Commission, and I'm quite sure that a satisfactory pooling arrangement can be worked out. In the immediate fringe area around the field and in the field itself there is no doubt in my mind that there will be any infringement on correlative rights.

Q Is Compass Exploration the owner of all the working interest in the pool except the 40 acres you described?

A Yes, it is.

MR. STOCKMAR: I think that's all we have of Mr. Farrelly. Are there any questions, Mr. Examiner?

MR. NUTTER: Are there any questions of Mr. Farrelly? You have another witness coming up?

MR. STOCKMAR: Yes, sir.

CROSS EXAMINATION

BY MR. NUTTER:

Q Does Compass at the present time have any plans for drilling any additional Gallup wells in this immediate area?

A No, it does not.

Q You feel as far as your present plans are concerned, these three wells with their 320-acre tracts would be complete development for the time being at least?

A Yes, sir.

Q And you own it all except for 40 acres which International owns and you are negotiating with them?

A Correct.

MR. NUTTER: No further questions.

MR. STOCKMAR: May I ask --

REDIRECT EXAMINATION

BY MR. STOCKMAR:

Q In your lands, is the royalty and overriding royalty burden constant throughout?

A Yes, it is.

MR. NUTTER: The witness may be excused.

(Witness excused.)

MR. STOCKMAR: I call Mr. Dugan.

THOMAS A. DUGAN

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. STOCKMAR:

Q Will you please state your name, address and occupation for the record?

A Thomas A. Dugan, 1007 North Dustin, Farmington, New Mexico, Consulting Petroleum Engineer.

Q Have you previously testified before this Commission?

A Yes.

MR. STOCKMAR: Will Mr. Dugan's qualificationsas an expert petroleum engineer be accepted?

MR. NUTTER: Yes, sir, they are.

Q Mr. Dugan, have you made a study of the Largo Gallup gas reservoir, and are you prepared to make recommendations relating to it?

A Yes, sir, I have. I've worked on the completion of all three of the Compass wells and have studied the logs, and the completion techniques.

Q Will you summarize the recommendations so that your later testimony will appear in the light of your recommendation?

A We are recommending 320-acre spacing and a thousand

MCF per day allowable.

Q Will you identify the spacing areas that you are recommending?

A We are recommending that the South Half of 3 be dedicated to the 1-3 and the East Half of 4 to the 1-4, and the West Half of 4 to the 2-4.

Q Is it also your recommendation that the three existing wells be the permitted wells for each of the three proration units?

A Yes, it is.

Q Do you have an opinion, Mr. Dugan, as to whether the reservoir is a common source of supply with communication throughout?

A I believe that it is a common source of supply by studying the logs and the potentials of the wells and the way that they perform.

Q Based on your studies, Mr. Dugan, what area will one well efficiently and economically drain without waste?

A 320 acres.

Q What reserve determinations have you made with respect to the reservoir, what conclusions have you reached?

A I have made a volumetric reserve calculation as to the amount of recoverable gas.

Q Will you state the results of these?

A Yes. Using average net pay of ten feet and porosity of 11%, water saturation of 35%, residual oil saturation of 10%, bottom hole pressure of 1925, bottom hole temperature of 150 degrees Fahrenheit, abandonment pressure of 250 psi, and gas specific gravity of 0.680, I estimate that one and a half billion cubic feet of gas can be recovered from 320 acres.

Q What abandonment pressure do you contemplate in that determination?

A 250 psi.

Q Have you made studies of well costs for this field, Mr. Dugan?

A Yes, I have. The average cost of a dual completion in the Gallup-Dakota zones is $120,000. Estimated cost for a single completed Gallup well would be $75,000.

Q Based on these studies and your determinations of future income, what is your opinion with respect to the economics of 160-acre spacing and 320-acre spacing?

A Using half of the cost of a dual completion for a 160-acre Gallup well, it would be just a break-even investment. You would lose money drilling a single completed Gallup well on 160 acres. You'd approximately double your money on 320-acre

dedication.

Q Can any further dual completions be contemplated in this field?

A Well, all of the wells are dually completed and because of the 320-acre proration units for the Dakota formation there can be no other duals.

Q So any further development would be a single completion?

A On the present acreage, that's right.

Q Will, in your opinion, the establishment of 320-acre spacing prevent waste in this pool?

A Yes.

Q What is the basis for that statement? How will waste be prevented?

A Well, you will prevent waste, economic waste, by the elimination of extra drilling, of course, by eliminating the extra drilling will prevent any hazards involved in drilling the wells such as blowouts, fires or other mishaps that might cause waste of gas.

Q To relate this back to the statute a little clearer, may I ask you this question, will 320-acre spacing avoid the augmentation of risk arising from the drilling of other wells?

A Yes.

Q Is this what you are speaking of when you are speaking of damage to the wells, blowouts?

A There's always the possibility if you are drilling twice as many wells, you have twice the risk.

Q Is it your opinion that wells on 160-acre spacing would cause the drilling of unnecessary wells?

A Yes. The other factors that could be, that would cause waste by having twice the number of wells, would be the added gas that is wasted in the completion processes and testing processes, the added gas that's necessary to fire the heaters and operate the controls of the additional wells.

Q Surface waste, generally?

A Yes.

Q This waste would be prevented by 320 acre?

A Yes, it would.

Q Will more or less gas be recovered from the reservoir on 320-acre spacing than if 160-acre spacing is ordered?

A I feel a reservoir of this type with good porosity and good permeabilities, it will be very little difference in the total amount of gas recovered between the two spacings.

Q If we assume that uneconomic wells will not be drilled, and according to your testimony single Gallup completions would be uneconomic, then would there be any difference in the recovery?

A If the field was not developed because of the 160-acre spacing, there would be less recovery of gas really.

Q Are you speaking about the existing field or the extension of it?

A No, the possible extension of the field if it was deferred because of the 160-acre spacing, the over-all recovery would be less.

Q Then there is a possibility, or probability, that waste would be caused by 160-acre spacing order?

A That's my opinion.

Q Is there anything about the nature of dual wells which might have a bearing on prevention of waste?

A Well, since the wells are completed as duals, the operating cost is less and the wells will be produced to a lower abandonment pressure because of the less operating cost.

Q Lower than what?

A Lower than would be ordinary if they were single completions.

Q Mr. Dugan, do you have knowledge of other Gallup Gas Pools in the state and the spacing regulations and orders relating thereto?

A Yes, the Angel Peak - Gallup Pool and the **Escrito** -Gallup Pool, Devils Fork-Gallup Pool, all are associated pools with

320-acre gas spacing.

Q Are these of comparable reservoir characteristics, depth and so forth?

A The Largo Gallup Pool is slightly deeper than the other pools.

Q What is the basis of your recommendation that the allowable be set at 1,000 MCF per day?

A Well, it is, excepting the present allowable with a double acreage factor and excepting the finding of the former hearing, the previous hearing.

Q Are you in a sense simply recommending that the permitted allowables for the 260 be combined?

A Yes.

Q To be produced through a single permitted well?

A That's right.

Q Will correlative rights be protected if 320-acre spacing is ordered and if this allowable is established?

A Yes.

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

MR. NUTTER: Any questions of Mr. Dugan?

CROSS EXAMINATION

BY MR. NUTTER:

Q You said at the beginning of your testimony that you felt that a well would drain 320 acres in here. What do you base that statement on?

A Well, on the porosities and permeabilities, and also we haven't had time to take interference tests, but in a sense the maximum pressures recorded on the third well drilled was less than the maximum pressures recorded on the first and second wells, so we feel that there has been some drainage.

Q You mentioned good permeability twice and haven't given the permeability. What is it?

A We really don't know what the permeability is.

Q How do you know it's good?

A Well, because of the way that the wells produce and the productivity of the wells.

Q What is the productivity of these three wells?

A They're capable of delivering three to five million MCF a day into the line against 500 pounds. Also, while we were completing the 1-4 perforating the Gallup zone, the well produced five million prior to fracturing.

Q Each of these wells is capable of delivering three to five million a day against 500-pound line pressure?

A Yes, sir.

Q Another thing, I notice that you mentioned these

other pools like Angel Peak-Escrito and several of those others as being similar here and also stated that they were associated reservoirs. In your opinion is this an associated reservoir?

A It hasn't been proved that way yet. It possibly could be in the future. No oil wells yet.

MR. STOCKMAR: Mr. Examiner, may I call your attention to the existing order which does make a finding, that based on the last hearing there is a possibility or a probability that there may be a connected oil rim of some type.

Q But there's been no oil well drilled?

A That's right.

Q How about liquids from these wells, what kind of ratios do they have?

A About 100,000 to 1.

Q They are relatively dry wells then?

A Yes, sir.

Q Now, Mr. Dugan, the request for the allowable here is 1,000 MCF per day, which you stated is simply the present allowable multiplied by two, since you are asking twice the acreage be dedicated to the well?

A Yes, sir.

Q What would that be, 30 or 31,000 MCF per month allowable to the wells then?

A Yes.

Q How does this compare with a gas well's allowable in one of the declared gas pools of comparable depth in the San Juan Basin at the present time?

A Actually it would be less for wells with comparable deliverabilities.

Q What is the current present allowable, or I might even say the average allowable for a Dakota well with a deliverability in this range of three to five million?

A Well, I'm not sure.

Q Is it 30,000?

A It would be approximately a third of it. You'd be able to deliver approximately a third of your deliverability the way proration is going right now.

Q You mean that the allowable to a Dakota well under the present allocation formula and under the present rates of allowable that has a deliverability of three million would be receiving an allowable of one million per day?

A Yes.

Q Or 30,000 --

A Well, it might be 28%. I believe the last time I looked it up it was down around 28%, which is a little less, say the fourth of it.

MR. NUTTER: Are there any other questions of Mr. Dugan?

MR. STOCKMAR: May I ask one on this same track?

MR. NUTTER: Yes.

REDIRECT EXAMINATION

BY MR. STOCKMAR:

Q Have you made any calculations as to the relative level of this requested allowable versus other Gallup sand gas producers?

A Yes, sir. The allowable for gas wells in Angel Peak is 1542 per day, and in Escrito is 1360, I believe.

RECROSS EXAMINATION

BY MR. NUTTER:

Q Those are based on the GOR of an oil well?

A Yes, sir.

Q And an acreage factor?

A Right.

Q Multiplied times that GOR?

A Yes. Actually the depth, it would be the same as Angel Peak in this case, because the depth factor would be the same, 1552.

Q This is in a depth of six to seven thousand?

A Yes.

BY MR. UTZ:

Q How does that compare with the allowables in Devils Fork?

A It's a little higher than Devils Fork.

MR. NUTTER: Any further questions?

MR. DURRETT: I have one question.

BY MR. DURRETT:

Q Mr. Dugan, it's not your opinion, is it, that if you leave oil or gas in the ground temporarily, that that constitutes waste? That's not what you were testifying to on direct examination?

A No, sir, I don't believe I said that.

Q You would feel, then, that in order to constitute waste that oil or gas would have to be lost to recovery and not just temporarily delayed?

A Yes.

MR. DURRETT: Thank you.

MR. NUTTER: Any further questions? The witness may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Stockmar?

MR. STOCKMAR: No. Thank you very much.

MR. NUTTER: Does anyone have anything to offer in

Case 2842? Mr. Durrett, do you have anything to offer in this case?

MR. DURRETT: I would like to state that we have a communication from El Paso Natural Gas Company stating that they concur with the applicant in this case. This telegram is, indicated that it came from Mr. Garrett C. Whitworth, attorney for El Paso Natural Gas Company.

MR. NUTTER: Thank you, Mr. Durrett.

MR. STOCKMAR: Will that be incorporated in the record?

MR. DURRETT: It will be in the official file and will be there for any person to read who would like to look at it. Would you like to move that be made an official part of the record?

MR. STOCKMAR: No, I would just like to find them agreeing with me.

MR. NUTTER: Does anyone have anything further to offer in Case 2842? We will take the case under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 7th day of July, 1963.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:

June 19, 1967.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2892, heard by me on 6/26, 1963.

, Examiner
New Mexico Oil Conservation Commission