

BENSON-MONTIN-GREER DRILLING CORP.

221 PETROLEUM CENTER BUILDING, FARMINGTON, NM. 87401 505-325-8874

June 12, 1987

To: CANADA OJITOS UNIT  
WORKING INTEREST OWNERS

Re: CANADA OJITOS UNIT  
RIO ARriba COUNTY, NEW MEXICO:  
OIL CONSERVATION COMMISSION ORDERS  
R-6469-D AND R-7407-E  
(RE MARCH ALLOWABLE & SPACING HEARING)

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ASSESSMENT OF OIL CONSERVATION  
COMMISSION "FINDINGS" AND IMPLICATIONS  
OF ORDERS AS TO CANADA OJITOS UNIT  
OPERATIONS

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REDUCTION IN PRESSURE MAINTENANCE

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GAS MARKETING

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CONTINUED EXPANSION OF GAS HANDLING  
FACILITIES (AFE ENCLOSED)

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RESPONSE REQUESTED REGARDING MARKETING  
EACH OWNER'S SHARE OF GAS (BALLOT AND  
GAS SALES CONTRACT ENCLOSED)

Orders entered following the March spacing and allowable hearing were forwarded to the working interest owners a few days ago. Additional copies (Order R-6469-D yellow color, R-7407-E blue color) are enclosed with this letter.

Unit Operator's assessment of the OCD "findings" of Order No. 6469-D are enclosed (Attachment No. 1). Implications of these findings and Orders as to Canada Ojitos Unit operations are described in Attachment No. 2, along with reduction in the pressure maintenance program.

Remarks concerning gas marketing (Attachment No. 3) follow. Attachment No. 3 includes discussion of a proposed gas sales contract and a ballot which we request you consider and act on.

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Continuation of last fall's expansion of gas handling facilities is discussed under Attachment No. 4; and an AFE to cover the costs of this expansion is enclosed. This expansion serves the dual purpose of gas injection and gas marketing. We request you give this AFE early consideration. We recognize that cash flow is of more concern to working interest owners now than in normal times; and in this respect we note that anticipated income from 2 or 3 months' gas sales will exceed the cost of this expansion of gas facilities set out in the AFE.

Presumably the Commission did not intend that its orders would cause a dismantling of the Canada Ojitos Unit pressure maintenance project; but the unit owners must face the reality that such could be an unintended consequence of "Finding" No. 17 of Order R-6469-D.

The Commission's pressure maintenance regulations provide for partial, as well as complete, pressure maintenance in that only partial credit is given in determining allowables if only partial pressure maintenance is carried on.

We regret not having provided more notice as to gas marketing; but under the circumstances we were unable to do so. Perhaps we should have been prepared; but our preparations had been limited only to long range planning. It never occurred to us that the Commission would increase the reservoir voidage for top allowable wells by a factor of 7 to 1 over that currently existing; and although it is for only a short time, the consequences could be serious. More significant, however, is that although we approve of the Commission's actions as to permanent allowables, we are concerned - as discussed herein with respect to its "Finding" No. 17 - that it is forestalling expanded unitized operations. This, along with Gavilan's continued alarming rate of pressure decline, makes it incumbent on the Canada Ojitos Unit owners to establish quickly a ready market for gas.

In view of the foregoing, it is to be expected that the participants will have a number of questions. We have tried to anticipate and answer these in the attachments.

Recognizing the implications of these orders, we will want to add to the agenda of the upcoming Operators' Meeting a discussion of the issues of phased dismantling of the pressure maintenance project, and operator's plans for marketing large volumes of gas on short notice.

It now appears that the time to hold the Operators'

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meeting when issues can most productively be considered will be October or November; and aside from any "required wells" (as defined in the Unit Agreements) we anticipate not recommending any new wells (beyond the F-7) prior to the meeting.

BENSON-MONTIN-GREER DRILLING CORP.

BY:

  
Albert R. Greer, President

ARG/tlp

Enclosures

ATTACHMENT NO. 1  
TO LETTER DATED JUNE 12, 1987  
TO CANADA OJITOS UNIT PARTICIPANTS

UNIT OPERATOR'S ASSESSMENT OF THE OIL CONSERVATION COMMISSION  
"FINDINGS" OF ORDER NO. 6469-D

First, we note that the "findings" reveal the dilemma of well-intentioned Commissioners faced with making decisions on issues about which the opinions of expert witnesses are in conflict; and accordingly are searching for some way to obtain the necessary facts to resolve the differences.

We sympathize with their dilemma; but cannot agree that their plan will provide definitive answers.

Following is our assessment of each of the numbered findings.

Finding No. 5:

We disagree that there is limited communication between the two designated pools. As we have noted over the years, the zones are stratified and there is limited vertical communication among the zones; except along the steeply dipping east side where we believe that the zones may be connected by faults. Within the zones, the permeability varies markedly from area to area particularly with respect to the individual tight blocks in which the wells are completed. Overall, however, there is a high degree of lateral communication in each zone; and it continues from one designated pool into the other.

The problem here is the opposition's analysis described in the hearing (and apparently the Commission has accepted it) in comparing C zone pressures in the east part of the unit with combined A, B and C zone pressures in the Gavilan area (like mixing apples and oranges) and thereby concluding that the communication between the two areas is "weak". Since about 6 times as much oil had been taken out of the C zone in the unit as compared to the A and B zones when the first Gavilan well was drilled; it is only to be expected that the combined pressures of the three zones in Gavilan would be significantly different from that of the east portion of the reservoir's C zone pressure. It does not mean that there's weak communication laterally in any of the zones.

Finding No. 6:

We agree in part with this finding in that in West Puerto Chiquito the principal zone of production for many years was the C zone; however the A and B zones are also productive in the unit. We suggested last summer that the dominant zones in Gavilan were probably the A and B zones; however no one really knows since the wells in Gavilan for the most part have not tested the zones separately. Where

zones were tested separately and reported in the March hearing all zones were producing in Gavilan.

Finding No. 7:

We disagree that throughout the reservoir there is communication between zones A and B. We have, on occasion, tested the zones individually and found the A and B zones to be separated.

Finding No. 8:

We agree completely with this finding.

Finding No. 9:

We agree that there was conflicting testimony; however we fail to see how the proposed test will provide definitive information in this respect.

Finding No. 10:

This was the testimony. Not addressed was the life of West Puerto Chiquito. Whether the life of West Puerto Chiquito can be extended beyond that of Gavilan given the communication throughout the area now becomes a vital question.

Finding No. 11:

This appears to be a statement of the statewide depth bracket allowable. We think, however, it is a mistake to provide an allowable this high for this pool even for a short length of time.

Finding No. 12:

The Commission's objectives here are commendable and its decision to reach the objective is, of course, well intended. Even so we do not believe the proposed test will provide the Commission with definitive data with regard to these issues. Particularly as to the ability of high capacity wells to drain other wells' tracts there has already been established (through the pressure decline of shut in wells) that high volume wells can drain the tracts of smaller (or shut in) wells - just as Finding No. 8 states. In no way can the planned test provide more definitive data than that already existing.

In addition to the above, there are practical matters which could override any factual data the Commission is attempting to obtain and analyze with respect to the consequences of setting a high allowable:

1. Unless the Commission suspends the regulations for overproduced wells, then these wells will not be produced at the high rates; therefore deductions based on reservoir performance at "high allowables" would be invalid (since the

wells were not produced at high rates).

2. As to our unit operations, Unit Operator feels strongly about the hazard of producing wells at rates high enough that might cause channelling of the injected gas and compound the problem of keeping unitized products on the unit's side of the boundary. Just what is the proper balance of pressure differential from the gas injection area to the downdip recovery area, production rates to minimize drainage and level at which the gas cap pressure should be maintained are matters impossible to forecast precisely. Unit Operator's present thinking is that the most practical course, given all the imponderables, is to commence reducing the pressure differential from the gas cap area to the downdip - recovery area by marketing gas rather than increasing production rates. If we follow this course, then, the unit's production will not substantially increase during the test period and the same invalidation of the Commission's test will result as will that based on wells restricted because of overproduction.

The only clear-cut consequence of a test raising the allowable and GOR limit is that production will be transferred from more efficient wells to less efficient wells; and it is not necessary to run a test to try to determine how that applies in this particular reservoir - that's an accepted principle of conservation for any reservoir.

Finding No. 13:

We agree the allowable should be as set out in Finding No. 13 for a permanent allowable.

Finding No. 14:

This is a statement of a fact.

Finding No. 15:

This also is a statement of a fact.

Finding No. 16:

This is a finding that most of us have wished were true. When we first proposed the concept years ago, it seemed such a good solution to a situation that otherwise would pose problems, that it was only natural that everyone involved wanted it to be the case.

The problem is that it's only about 10% geologic hypothesis and 90% wishful thinking.

The truth of the matter is that it is impossible to make a conclusive finding that categorically states - as this does - that "proper development" will protect the Canada Ojitos Unit from drainage. We note that the high capacity fracture system exists in the boundary area; but we do not know that the unit wells which are currently being drilled here will be in adequate communication with the high capacity system such that they can produce enough to minimize the drainage.

In a reservoir of uniform properties, two rows of wells on the same spacing within a unit as opposed to those offsetting wells outside the unit generally can be expected to significantly minimize drainage. This reservoir, however, is not an ordinary reservoir of fairly uniform properties; and the general situation does not apply here.

Not only this but the drilling of more than one well to a section will clearly cause waste in that the second well is unnecessary (as the Commission found) to recover the oil and gas. If the Canada Ojitos Unit boundary wells are located one well to a section (one-half the density of the Gavilan wells), then, at a minimum, they must produce twice the reservoir voidage of the average Gavilan well just to "break even" - and to stop drainage, not only must these wells "break even", they must produce their shares of the injected gas as well. With Gavilan's GOR's about 4 times that of the unit's boundary wells (whose gravity drainage production keeps their GOR's low) then each Canada Ojitos Unit boundary well must produce in addition to injected gas 8 times as much oil as each Gavilan well to equalize withdrawals. Some of the Canada Ojitos Unit boundary wells are capable of this - but not all.

Accordingly, we cannot blindly rely on the notion that the drilling of offset wells along the boundary will stop drainage from the unit; so we disagree with this finding.

Finding No. 17:

We disagree with this entirely. The two parts of the reservoir are so well connected that all wells therein should be operated under the same rules and regulations. As noted in Attachment No. 2 herein ("Implications") this finding causes us the greatest concern of all. The two areas are not geologically different: they produce from the same common source of supply, and as reservoirs go, they have an astonishingly high degree of communication. True, the areas are operated differently - but this is a man-made development and not a requirement of the physical properties of the reservoir.

ATTACHMENT NO. 2  
TO LETTER DATED JUNE 12, 1987  
TO CANADA OJITOS UNIT PARTICIPANTS

IMPLICATIONS

As we have from time to time indicated, the unit's pressure maintenance project cannot be continued with assurance that unitized products will not be lost from unit control unless the pressure in Gavilan is maintained or some kind of cooperative agreement worked out to recognize the migration.

The lower the pressure drops in Gavilan, the greater the hazard of migration. The obvious and practical solution would be a single unit covering Canada Ojitos and Gavilan; such that the increased recovery resulting from pressure maintenance in the Canada Ojitos Unit would benefit both the owners of the existing unit and those in Gavilan. (Although there is difference of opinion about the benefits of pressure maintenance in Gavilan, we presume there is no argument about the clear-cut pressure maintenance benefits that have occurred in the Canada Ojitos Unit.)

Owners of about 95% of the acreage in the Canada Ojitos Unit and half of the acreage in Gavilan would prefer a single unit. Half of the Gavilan owners have resisted any kind of unitization - that is until the March hearing.

At the March hearing those who had been opposed to unitization indicated that pressure maintenance - which requires unitization - would be beneficial under "low pressure". Since that part of the reservoir underlying Gavilan will soon be at low pressure rational thinking would suggest that unitization efforts be commenced right away.

This, however, is not being done; and the Commission's Finding No. 17 in Order No. R-6469-D implies that the Commission does not want to entertain unitization of the combined area.

There is no question that with the communication across the reservoir underlying both established pools that the protection of correlative rights demands that this be recognized and - as the Commission has done - provide the same rules for both areas. In a practical sense this should be done by recognizing the common source of supply and designating it as one pool.

As we see it, the only reason not to designate the reservoir as a single pool is to forestall a unit covering the reservoir. Where approximately 3/4 of the operators would prefer a single unit, it would seem that the Commission would not try to prejudge the merits of a single unit; but would leave the process to the regulations as they now stand; so this decision of the Commission gives us concern.

With Gavilan "dragging its feet" with respect to unitization and the Commission apparently forestalling the possibility of an enlarged unit, it is incumbent upon the Canada Ojitos Unit owners to take immediate steps to mitigate drainage.

As the pressure in the boundary area drops, the pressure differential increases from the Canada Ojitos Unit gas cap area to the downdip recovery area (along the boundary) and the potential for gas channelling and migration of unitized substances increases.

Also as the reservoir's gas saturation increases the permeability to gas greatly increases and the migration potential will increase in a compounding fashion.

Once the cycle reaches a critical point, it will be impossible to stop and the only solution will be to reduce the pressure in the gas cap (by marketing gas).

This will reduce the ultimate recovery of oil, so the issue we face now is which is the lesser of the two evils: reduction in ultimate oil recovery or loss of oil and gas by migration away from the unit.

If we find it necessary for the unit to match Gavilan's declining pressures, then this fast rate of pressure decline will cause the oil recovery mechanism to revert to that of the inefficient solution gas drive with consequent relatively low recovery of oil and high overall GOR's. Given this and the volume of gas in the gas cap the future GOR's could average as much as 20 MCF per barrel; such that the value of the gas even at spot market prices will substantially exceed the value of the oil. Accordingly we must not allow to develop a situation where gas, with its high mobility, is allowed to migrate, unchecked, out of our control, and therefore the ability to market gas in large volumes is essential.

We are suggesting at this time that gas marketed not exceed 10 MMCF per day; but that we be prepared to market larger volumes. At the Operators' Meeting planned for this coming fall, we will describe our plans for utilization of unit facilities to market larger volumes.

Failure of the unit owners to prepare for marketing large volumes of gas, given the current circumstances, would be worse than imprudent - it would be foolhardy.

It is unfortunate that events have brought us to this situation. Clearly, with the benefit of pressure maintenance and the industry's current gas oversupply situation the proper course would be to continue with pressure maintenance and market the gas later at a more opportune time, and following a substantial period of gas cycling with perhaps a gasoline plant. "Stripped" gas injected on the east side of the reservoir and moving several miles to be produced in Gavilan could be expected to pick up substantial liquids and further increase the ultimate recovery.

The low pressure gas injection suggested at the March hearing for Gavilan would - in contrast - result in gas movement over short distances through high gas saturated channels with little ability to accomplish this potential benefit.

As to Gavilan it is more than unfortunate - it is a tragedy - that Gavilan is not unitized. Given the great difference in drainage of the reservoir by wells on different tracts and drainage from tracts not drilled - or drilled but shut in for lack of gas market - and that average future wells in Gavilan will not produce enough oil to pay for the cost of drilling, there is only one commonsense solution: unitization.

Had Gavilan been unitized under the tentative plans the Engineering Committee was following last year, the correlative rights problems would have been solved, the undrilled acreage (as to both working interest and royalty owners) would have received equity for the production that has been drained from them - and the shares of the costs to the working interest owners of undrilled tracts would have been paid for out of production without their having to provide upfront funds.

Recognizing the above and simple facts set out below, one wonders what has kept unitization from coming about.

The simple facts:

1. The Canada Ojitos Unit needs the cooperation of Gavilan to continue its pressure maintenance project.
2. Gavilan will need the cooperation of the Canada Ojitos Unit to institute its low pressure gas injection project.
3. Canada Ojitos Unit pressure maintenance is already in effect.
4. Low pressure in Gavilan will soon arrive.

The elements of dependency create a climate that should insure cooperative efforts; so why aren't they being undertaken?

Considerable progress was made last fall - until the election. At the first meeting following the election, Mallon withdrew from the Engineering Committee and the process was halted.

Unless positive steps - now not being planned as far as we know - are taken toward unitizing Gavilan, the implications for continued pressure maintenance under the Canada Ojitos Unit operations are not favorable.

ATTACHMENT NO. 3  
TO LETTER DATED JUNE 12, 1987  
TO CANADA OJITOS UNIT PARTICIPANTS

GAS MARKETING

As set out in the cover letter hereto, Unit Operator proposes short term marketing of gas (for a time equal to that of the high allowables) at estimated rates of 5 to 7 MMCF/D. Volumes proposed for sale will be at least as much as that produced by wells on the westernmost two rows of sections but not to exceed 10 MMCF/D.

If the working interest owners approve the marketing of gas, then the Unit Operator will sell its share of the gas for this short time under the enclosed gas contract. The other participants are invited to do likewise.

Should the working interest owners vote not to market gas, then we will simply nominate zero for affected months under the contract.

Because of time constraints we chose the course of entering into the contract first, and securing approval later. We just did not have available the time we ordinarily would have set aside for working interest owners' consideration of such matters. We received our copy of the Commission's order Tuesday, June 9; this letter is being written June 12, and to sell gas in the spot market for July requires a bid June 19.

For those who wish to sell under the same contract terms, it is not necessary that each party formally enter into a contract with the purchaser. The Unit Agreement provides as to contracts with terms of less than one year that the Unit Operator can market the other participants' shares of gas for them - providing that if gas is sold into interstate commerce (our proposal) that each participant must approve the sale.

As to penalties under a transportation agreement with El Paso, we have been advised that EPNG has, so far, not assessed any penalties. It's our understanding that as long as we are slightly overproduced that we shouldn't suffer any penalties. Presumably we can do this.

The fee to Grand Valley Transmission for its part in the transaction is an amount equal to the difference in value of the gas as delivered by the "wet" and "dry" BTU measurements (about 2-1/4%).

Approval of the enclosed gas marketing contract by signing one copy of the enclosed Ratification to Gas Purchase Contract and returning it to operator will evidence each party's official approval to market gas (also noted on the enclosed ballot).

We request that each owner advise if you have any gas contracts providing for sale of gas into interstate commerce covering

the Mancos formation in any of the leases you have contributed to the unit. Our check of the records reflects that there are none - however we would appreciate each of you confirming this. This determination - whether or not gas is dedicated to interstate commerce - is the first, and simplest, test to determine if the gas qualifies for the contemplated sale. If we find that some gas has been dedicated to interstate commerce, we will have to check into each such situation further.

With respect to marketing of gas from the unit and the possible complications if one or more tracts are found to have Mancos formation gas that cannot qualify for the contemplated sale under the regulations, our legal counsel advises that this is one instance in which the regulations make sense: such a commitment of one lease does not "taint" the gas from the other leases, such that it would be unlawful, without abandonment, to now sell on the spot market (some unit wells were drilled before February 17, 1977). The regulation derives from the principle that one owner cannot dedicate into interstate commerce the gas of another owner. Accordingly, if it develops that there is a problem lease or two, they can be dealt with by not marketing the gas allocated to those tracts.

If we find that there are tracts whose Mancos formation gas does not qualify for this sale, we will establish an internal accounting procedure of gas balancing so that gas allocated to such tracts will not be sold, but will be held in storage until abandonment can be effected.

Should any operator elect not to sell gas we will submit to all parties for consideration a draft of a balancing agreement. We will keep open for the participants their option to elect to sell or not to sell for as long as possible to permit assessing individual situations. Should a gas balancing agreement be adopted we believe it should be of the kind that does not provide for cash settlement if the time comes that current non-sellers elect to sell and there is no gas left. That's the whole purpose of marketing gas now - the hazard that it may migrate out of control; so a current non-seller must bear that risk.

To expedite handling of the gas marketing issue, a ballot is enclosed. We request you fill out and return it to us as soon as possible. We may conduct a telephone poll in this connection; however we will still need your ballot.

If the participants approve the operator's recommendations to market gas now, such authority will terminate with the three months sales provided by the vote. No further sales are planned until such matters can be thoroughly discussed at the Operators' Meeting.

ATTACHMENT NO. 4  
TO LETTER DATED JUNE 12, 1987  
TO CANADA OJITOS UNIT PARTICIPANTS

CONTINUED EXPANSION OF GAS HANDLING FACILITIES

Operator's earlier plans for depletion of the reservoir included a period of gas cycling at rather high volumes, with consideration of a gasoline plant in conjunction with it. Experience gained in producing wells, along with reservoir analysis through interference testing shows that following gas breakthrough it is to be anticipated that wells will produce at relatively high flowing pressures, and that high volume gas cycling can take place with comparatively low compression horsepower requirements.

To carry out the cycling process the gas gathering system was planned to comprise a low pressure (100# to 200#) system and a high pressure (400# to 500#) system. Trunks (8" and 6") for these systems were installed down Lleguas Wash last winter. We considered using two 8" lines, but because the wash might flow sand under certain conditions and a possibility that the "river weights" used to assure negative buoyance might not be as effective as necessary, we elected to use only one 8" line, with the other being 6". (Heavy wall 6" through the critical areas, it is believed will not "float" under any of the forecast adverse conditions; so, if the conditions at some time might cause the 8" to float, the 6" would be available for partial operation, while repairs are made to the 8"). Since the distance up Lleguas Wash is relatively short (2-1/2 miles to Simon Canyon), we believe the lower gas carrying capacity of the 6" will not seriously affect our operations.

To expand the gas system for high volume gas cycling at high and low pressure gas gathering means continuation of the trunk lines up Simon Canyon. Here, with relatively good terrain, we recommend two 8" lines. Had Gavilan been unitized and pressure maintenance instituted, the installation of these two lines would have not been required for some time. As it is, we think it now time to lay these lines.

In addition to serving the purpose of gas gathering these lines can also be used for gas marketing. These two lines will provide for flexibility in gas marketing. Initially, the Simon Canyon low pressure 8" line will be blocked off at Lleguas Wash and gas from selected wells producing into this system will go directly (without compression) into the sales line. Gas from wells producing into the high pressure gathering line can go either to sales or to the central gas system - or both; and are expected to be useful in regulating the total sales volume to meet contract commitments.