

ASE 2473: Application of NEWMONT
for expansion of LOCO HILLS WATER-
FLOOD PROJECT, EDDY COUNTY, N.MEX.

Case 110.

2473

Application, Transcript,
and Exhibits, Etc.

A. J. LOSEE
EDWARD B. STEWART

LAW OFFICES
LOSEE AND STEWART
CARPER BUILDING - P. O. DRAWER 239
ARTES, A. NEW MEXICO
24 March 1962
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MAIN C

Mr. Richard Morris, Attorney
New Mexico Oil Conservation Commission
Land Office Building
P. O. Box 871
Santa Fe, New Mexico

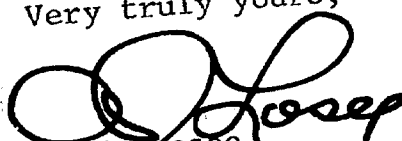
Re: Oil Conservation Commission (Case No. 2473)
Newmont Oil Company, Applicant

Dear Mr. Morris:

We supplement our application mailed to you on March 21, 1962, in the above styled case by enclosing herewith Exhibit 1 (a plat showing the location of the presently proposed injection wells and the location of all other wells and the names of the lessees within a radius of two miles from said presently proposed injection wells) and Exhibit 2 (which is the injection well casing program). These enclosures are each in triplicate.

Thank you in advance for your continued assistance in this matter.

Very truly yours,


A. J. Losee

AJL/vo

Encl.

cc: Yates Petroleum Corporation

Mr. Charles Langdon, Vice President
Newmont Oil Company
Fort Worth National Bank Building
Fort Worth, Texas

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 2473
Order No. R-2178

APPLICATION OF NEWMONT OIL COMPANY
FOR EXPANSION OF ITS LOCO HILLS
WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 4, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 30th day of January, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Newmont Oil Company, seeks permission to expand its Loco Hills Waterflood Project to include the West Loco Hills Grayburg No. 4 Sand Unit Area, comprising 5,320 acres, more or less, in Townships 17 and 18 South, Ranges 29 and 30 East, NMPM, Eddy County, New Mexico, which unit was approved by Order No. R-2166.

(3) That the applicant seeks permission to operate the expanded waterflood project as a "capacity" type flood unrestricted by the allowable provisions of Rule 701 E.

(4) That in the interest of increasing ultimate recovery in the Loco Hills Pool, the applicant should be authorized to

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Case No. 2473

Order No. R-2178

conduct waterflood operations in the West Loco Hills Grayburg No. 4 Sand Unit Area by the injection of water into the Loco Hills Sand; that the allowables to be assigned to wells in this project should be governed by the provisions of Rule 701 E, except that a buffer zone should be established in which allowables would be unrestricted.

(5) That production from wells outside the buffer zone should be tanked separately from production from wells inside the buffer zone unless the applicant receives approval from the Commission for some other satisfactory means of determining production from each of the two areas.

(6) That for the purpose of determining the project area and computing the project allowable under Rule 701 E, any producing well in said project area lying outside the buffer zone should be entitled to receive credit for offsetting an injection well regardless of whether the injection well is in the buffer zone or in the project area.

IT IS THEREFORE ORDERED:

(1) That the applicant, Newmont Oil Company, is hereby authorized to institute a waterflood in the Loco Hills Pool within the West Loco Hills Grayburg No. 4 Sand Unit Area located in Townships 17 and 18 South, Ranges 29 and 30 East, NMPM, Eddy County, New Mexico, by the injection of water initially into the following-described wells:

Ballard B No. 1 - SE/4 NW/4 Section 1, Township 18 South,
Range 29 East

Dixon Yates Federal No. 2 - SE/4 SE/4 Section 1, Township
18 South, Range 29 East

Newmont Canfield No. 1-A - NW/4 NW/4 Section 7, Township
18 South, Range 30 East

(2) That the ultimate project area for said waterflood shall consist of all the acreage within the said West Loco Hills Grayburg No. 4 Sand Unit Area, except the following-described acreage which shall constitute a buffer zone:

TOWNSHIP 17 SOUTH, RANGE 29 EAST
Section 36: S/2 SW/4

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Case No. 2473

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TOWNSHIP 18 SOUTH, RANGE 29 EAST

Section 1: W/2 and S/2 SE/4

Section 12: NE/4 and N/2 NW/4

TOWNSHIP 18 SOUTH, RANGE 30 EAST

Section 7: NW/4

(3) That the wells located within the above-described buffer zone may be operated at unrestricted rates of production.

(4) That all producing wells located within said waterflood project and outside the above-described buffer zone shall be operated and produced in accordance with the allowable provisions of Rule 701 E of the Commission Rules and Regulations.

(5) That for the purpose of determining the project area and computing the project allowable under Rule 701 E, any producing well in said project area lying outside the buffer zone shall be entitled to receive credit for offsetting an injection well regardless of whether the injection well is in the buffer zone or in the project area.

(6) That production from wells outside the buffer zone shall be tanked separately from production from wells inside the buffer zone unless the applicant receives approval from the Commission for some other satisfactory means of determining production from each of the two areas.

(7) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

E. L. Mechem

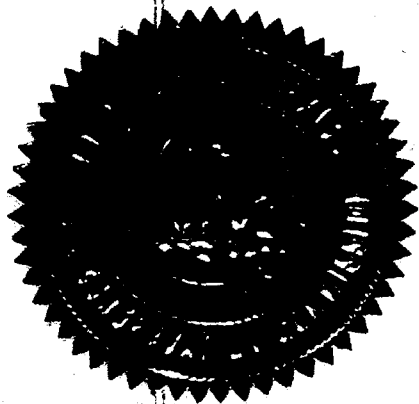
EDWIN L. MECHEM, Chairman

E. S. Walker

E. S. WALKER, Member

A. L. Porter, Jr.

A. L. PORTER, Jr., Member & Secretary



BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 4, 1962

EXAMINER HEARING

IN THE MATTER OF:

Application of Newmont Oil Company for approval of a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the West Loco Hills Grayburg No. 4 Sand Unit Agreement, covering 5320 acres, more or less, in Townships 17 and 18 South, Ranges 29 and 30 East, Eddy County, New Mexico.

Case 2472

Application of Newmont Oil Company for expansion of its Loco Hills Waterflood Project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks permission to expand its Loco Hills Waterflood Project to include the proposed West Loco Hills Grayburg No. 4 Sand Unit Area, comprising 5320 acres, more or less, in Townships 17 and 18 South, Ranges 29 and 30 East, Eddy County, New Mexico.

Case 2473

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: We will call Case 2472.

MR. MORRIS: Application of Newmont Oil Company for approval of a unit agreement, Eddy County, New Mexico.

MR. CAMPBELL: Mr. Examiner, I'm Jack M. Campbell, Campbell and Russell, Roswell, New Mexico, appearing on behalf

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of the Applicant. I would like to suggest that perhaps this case could be consolidated for the purpose of hearing only with Case No. 2473, which is the next case on the docket, involving a proposed waterflood operation in this unitized area. Some of the exhibits, one of the principal exhibits is to be used in both cases, and I thought perhaps it might save time to combine them for the purpose of the hearing only.

MR. NUTTER: Is there objection to the consolidation-- We will have to call it first. We will call next 2473.

MR. MORRIS: Application of Newmont Oil Company for expansion of its Loco Hills Waterflood Project, Eddy County, New Mexico.

MR. NUTTER: Is there objection to the consolidation, for the purpose of taking the testimony of Cases 2472 and 2473? The cases will be consolidated for hearing purposes.

MR. CAMPBELL: Mr. Examiner, I have one witness, Mr. Darden, in these cases. This will be Exhibit 1.

(Whereupon, Applicant's Exhibit No. 1 was marked for identification.)

MR. MORRIS: Mr. Darden, would you stand and be sworn?

(Witness sworn.)

FRANK DARDEN

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



DIRECT EXAMINATION

BY MR. CAMPBELL:

Q Will you state your name, please?

A Frank Darden.

Q Where do you live, Mr. Darden?

A Fort Worth, Texas.

Q By whom are you employed and in what capacity?

A I am manager of operations for Newmont Oil Company.

Q What is your profession?

A Petroleum engineer.

Q Have you testified previously before the Commission or its Examiners in your professional capacity?

A I have.

MR. CAMPBELL: Are the witness's qualifications acceptable?

MR. NUTTER: Yes, sir. In view of the fact that we advised people that this case would not be heard before 11:00 o'clock, I want to point out it's two minutes before 11:00. We advised them it would be approximately 11:00 o'clock. It is approximately 11:00 o'clock, if you wish to proceed.

Q (By Mr. Campbell) Are you familiar with the applications which are involved in this case?

A I am.

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Q I refer you to what has been identified as Applicant's Exhibit 1, which is on the wall there, and ask you if you'll please step up to that exhibit. Now, Mr. Darden, referring first to the application for approval of the unit, will you point out on Exhibit No. 1 the area that is involved in the proposed unit and identifying it by the nature of the markings which appear on Exhibit No. 1?

A Yes, the proposed West Loco Hills unit is outlined in heavy red line as shown here on Exhibit 1.

Q Will you point out in general the location of the presently operating Newmont Oil Company Loco Hills waterflood in relation to this proposed unit area?

A The Newmont Oil Company project is directly offsetting the unit on the North and on the East, and the active injection wells in the Newmont project are designated by red circles surrounding the injection wells.

Q Referring first to the Unit Agreement and the unit area, have there been a series of operators' meetings held in connection with the formation of this proposed unit?

A Yes, sir, there have.

Q Have copies of minutes of these meetings been furnished to the United States Geological Survey and to the office of the Commissioner of Public Lands?



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A They have.

Q Are the working interest owners in this area in substantial agreement as to the unit area and the Unit Agreement?

A They are.

Q Can you state what percentage of the operators and working interest owners have indicated their approval affirmatively?

A Approximately 89.33%.

Q Now, as to the balance, has there been any objection voiced to your knowledge?

A There has been no objection.

Q The 89.33% are those who have attended the operators' meetings, is that correct?

A That is correct.

Q And have all owners of working interest in this area been advised of these operators' meetings?

A They have.

MR. CAMPBELL: Will you mark this Exhibit No. 2, please?

(Whereupon, Applicant's Exhibit No. 2 was marked for identification.)

Q Mr. Darden, I refer you to what has been identified as Applicant's Exhibit No. 2 in this case and ask you to state what that is.

A This is the Unit Agreement for the development operation



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of the West Loco Hills Grayburg No. 4 Sand Unit area.

Q There appears to be some portions of this exhibit, some changes in the identification of the exhibit numbers. Are you aware of that?

A I am.

Q There are two exhibits which will be introduced here to be attached to this Unit Agreement, Exhibits A and B, are there not?

A That's correct.

Q And the corrections have been made here only to change the identification of the exhibits to conform to the exhibits actually attached, is that correct?

A That's right.

Q I believe there is an interlineation in ink appearing in the agreement. Is it your understanding that this is for the purpose of clarifying the language and including some omitted language in the mimeographed form?

A That is my understanding.

Q That they do not change the substance of the agreement?

A No.

Q Those have been shown in the draft that has been provided here as Exhibit No. 2, is that correct?

A That's correct.



MR. CAMPBELL: Will you mark this 2-A, please?

(Whereupon, Applicant's Exhibit 2-A was marked for identification.)

Q Now, Mr. Darden, I hand you what has been identified as Applicant's Exhibit 2-A and ask you to state what that is, please.

A This is a map outlining the unit limits and designating the participating and non-participating acreage which would be encompassed by the unit.

Q Does this exhibit number the various tracts that are involved in this proposed unit?

A It does.

Q And this is the Exhibit A which is referred to and will be attached to the Unit Agreement, is that correct?

A That's correct.

MR. CAMPBELL: Will you mark this 2-B?

(Whereupon, Applicant's Exhibit 2-B was marked for identification.)

Q I now refer you to what has been identified as Applicant's Exhibit 2-B and ask you to state what that is, please.

A This is a table which presents the description by tract number with the amount of acreage and the cumulative production to December 1st, 1960. It also presents the tract participation percentage in the unit. It also shows the total unit participation by each working interest owner.



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Q Mr. Darden, has the formation of the unit and the method of allocating the production from the unit been discussed with both the United States Geological Survey and the office of the Commissioner of Public Lands informally?

A It has.

Q Are you aware of any present objection to the formation of the unit?

A No.

Q Has an application been filed with the United States Geological Survey for the designation of the unit area?

A It has.

Q What is the proposed basis for the allocation of production from this particular unit?

A The participation formula is based 100% upon cumulative primary production from Zone 4 of the Loco Hills or the Grayburg, commonly called the Loco Hills Sand cumulative production to 12-1, 1960.

Q Have those consenting operators to which you have referred also agreed to this method of allocating the production?

A They have.

Q Will you state in general terms, Mr. Darden, how and why you arrived at this cumulative primary as the sole factor in the allocation of production from this proposed unit?



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A This is an old field, and when the wells were originally drilled, very little reservoir data such as core analyses or radioactive or electric logs were taken. Therefore, there's not any tangible reservoir data which could be used, and it is the consensus of the operators that cumulative primary production from the Loco Hills Sand is the most representative basis for unitization.

Q In your opinion, Mr. Darden, will the approval of this Unit Agreement for secondary recovery purposes be in the best interest of conservation?

A Decidedly so.

Q If the unit is established, who will be the unit operator?

A Newmont Oil Company.

Q Newmont Oil Company, as I understood you, is now operating the waterflood project immediately to the East and North of the proposed unit area, is that correct?

A That's right.

Q If the unit is approved, do you intend to initiate additional waterflooding efforts in the unitized area?

A As soon as possible, yes.

Q Would you return to Exhibit No. 1 there, please? Will you point out to the Examiner, as you see fit, the present



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operation and what is proposed to be done with regard to adding injection wells, and proceeding with the development of secondary recovery in the proposed unit area?

A As I said before, the active injection wells in the Newmont project are circled in red. Also on Exhibit 1 we have underlined in orange the producing wells in the Newmont project which have responded to injection. As you will note, there are wells that directly offset the unit that have responded to Newmont's injection. So it is our plan to put injection wells on offsetting the Newmont project which will adequately protect correlative rights both to Newmont and to the participants in the unit in the manner which is portrayed on this Exhibit 1.

I would like to point out that this is only a tentative development plan and that there will necessarily be changes in some of the injection wells as the project is developed. However, we will at all times keep the pattern consistent with the best interest of conservation.

Q Do you believe, Mr. Darden, that the formation of this unit and the development of the unit acreage is in the best interest of conservation?

A I certainly do.

Q Do you believe that this is the best method of adequately protecting the correlative rights of the owners of property



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in this area insofar as secondary recovery is concerned?

A I certainly do.

Q Do you consider this unitized area and the operations therein to be a reasonable extension of the presently existing waterflood project which Newmont Oil Company now operates?

A I do.

Q Mr. Darden, have you made any projection of the additional production that may be expected from the Newmont area and any projection as to the anticipated production from the unitized area insofar as peak production is concerned?

A I have. We have prepared this exhibit, which will be Exhibit No. 3. It gives an estimate of the production rate which Newmont expects of its present project, and which it expects by development of the West Loco Hills Unit on the basis which we have proposed.

(Whereupon, Applicant's Exhibit No. 3 was marked for identification.)

Q Now, referring to Exhibit 3, will you state the basis upon which these calculations are made and explain to the Examiner what, in general, it indicates?

A Well, we relied very heavily upon the performance of Newmont's present project in estimating what the individual wells in the unit will do as far as response and performance. We also have projected Newmont's production rate to the best of our



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engineering ability, and both of these things are portrayed there.

The Newmont project future production is in the dark dotted line and the West Loco Hills unit production is in the lighter dotted line.

Q Does this indicate that the production from the unitized area here to the West will be increasing at the time that the presently producing wells are declining?

A Yes. We estimate that the present Newmont project will peak hit its highest production rate in 1962, and thereafter will commence to decline as shown on Exhibit No. 3. We estimate that the West Loco Hills project will hit its peak production in the latter part of 1964, and will hold that peak for approximately two years and then will commence declining in a manner similar to the present Newmont project.

Q And that the peak of this unit area would be around 13,000 barrels in the latter part of 1964 based on your present projections, is that correct?

A I don't know this 13,000 figure.

Q Here.

A That's 130,000 barrels per month.

Q 130,000 barrels per month, yes.

A Yes.

Q Have you made any comparative calculations between the



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allowable production which would be in existence under the development of this project as an extension of the existing flood and the development of the project with a unit allowable where permission was granted to make transfers of the allowable?

A Yes, I have. There are presently 92 active wells in the proposed unit, and when fully developed we expect to have a total of 128 wells, including injection wells. There will be 110 40-acre proration units within the unit, and based upon 42 barrels per 40-acre tract plus one-third of 42 barrels for each additional well within a 40, the total unit allowable would be 4872 barrels per day.

Q Have you made any calculations as to what the production would actually be, assuming that you proceeded under the same operation as you are conducting in the Newmont Loco Hills flood to the East?

A Yes, we estimate that the project will peak at approximately 4300 barrels per day.

Q So that the amount of the allowable under a unit allowable with transfers would be greater than the production you estimate under the extension of the presently existing flood, is that correct?

A That is correct.

Q Why is that?



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A Well, that is due primarily to the system of control on rate of expansion. The Commission requires evidence of response of producing wells before the next row of injection wells can be put on. We have found in the Newmont project that that has very effectively limited the peak at which our project could hit.

We had originally estimated in our engineering before the flood was started that if it were a successful flood it would peak, I'm speaking now of the Newmont project, it would peak at around 5200 barrels per day. Well, it now appears that we will not peak at over approximately 3500 barrels, but, of course, in our original engineering we had expected to go to full development as soon as we had a successful pilot. And for that reason we believe that expanding on the same basis in the West Loco Hills Unit will achieve approximately the same sort of results.

Q Where do you anticipate obtaining the water for the development of this area?

A From the Yucca Water Company.

Q Is that the same source of water that's being used in the present Newmont flood?

A It is.

Q A few questions about the present flood and what you contemplate in connection with the unit area. Would you state for the record what you are doing in connection with the



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injection of water relative to injecting it through the casing or injecting it through the tubing in the injection wells?

A We have a standard procedure of testing each injection well to the plant injection pressure testing the casing in the well. If we find that the casing is in good condition and will hold that pressure with no evidence of any type of leakage, then we inject down the casing. In the event that there is any evidence either on that test or in subsequent injection that the water is not going into the desired sand, we then run tubing and set it on a packer and inject through tubing.

Q Do you believe, Mr. Darden, that if this project is approved as an extension of the existing Newmont flood, that it will be in the interest of conservation insofar as ultimate recovery of oil is concerned?

A I definitely do.

Q Do you believe that the Unit Agreement, coupled with the development of the unit area on the same basis as you have presently developed the Newmont flood, will protect correlative rights?

A I do.

Q Do you believe that the development of this area on this basis will better protect correlative rights than the development of the area on an individual lease basis would do?



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A I certainly do.

MR. CAMPBELL: I would like to offer Applicant's Exhibits 1, 2 and 3 in evidence, Mr. Examiner.

MR. NUTTER: Applicant's Exhibits 1, 2 and 3 will be entered in evidence.

MR. CAMPBELL: That's all the questions I have at this time.

MR. NUTTER: Are there any questions of Mr. Darden?

MR. MORRIS: Yes, sir.

MR. NUTTER: Mr. Morris.

CROSS EXAMINATION

BY MR. MORRIS:

Q Mr. Darden, your original pilot waterflood project in the Loco Hills area was authorized, I believe, by Order No. R-1267, Case No. 1511. The order was dated on October 25, 1958, is that correct?

A I'm not certain of the number, but I assume that is correct. It was approximately that time.

Q Right. Could you tell me what the original pilot area was in this project?

A Yes. We had six injection wells located in Section No. 1, Township 29 East, 18 South, and Section No. 6, Township 30 East, Range 18 South. The wells were the Ballard No. 5-B,



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the Yates A No. 2, the Yates A No. 11, the Yates No. 2, the Yates No. 3, and the Yates No. 5.

Q Yes. So five of those injection wells were in Section 6 and one was over in Section 1?

A That is correct.

Q How many producing wells did you have in the original pilot area?

A Well, there were two wells that were completely closed, Yates No. 8-A and Yates No. 9-A. There was one producing well which had what we call a three-way push. It was open on one side and that was the Yates No. 6.

Q So the six injection wells and the three producing wells constituted the entire pilot area?

A That's correct.

Q Then after the approval of that pilot area you expanded that particular project, did you not?

A Yes.

Q And in which direction did you first expand the project?

A I believe that our first expansion was with the drilling of our No. 13-A. Now, I would have to check the records to be certain, but we did expand it towards the East, and about the same time we re-entered Well No. 7 and put that well on injection. We put No. 12-A on to give some backup for No. 4, a producing well.



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We then put the Carper No. 2 Well on, we moved in this direction and put the Ballard --

MR. CAMPBELL: Which direction?

A To the West. On to the Ballard lease, and put the Ballard 4-B on, we drilled the Ballard 6-B to give a more efficient pattern. We have recently put the Brigham No. 1-A on, which is located in Section 31, Township 17 South, Range 30 East. We have drilled Brigham No. 4 on that same lease, an injection well, we have drilled Carper Talmadge No. 4 as an injection well in Section 32, so we have moved in both East and West directions as response dictated.

Q I see. How many injection wells do you have in the project at the present time?

A Well, I had better count them -- fifteen.

Q Fifteen injection wells at the present time, and the exhibit will reflect how many producing wells you have at the present time?

A Yes.

Q Would you say, Mr. Darden, that the project then has gone definitely beyond the stage of a pilot waterflood?

A Yes, sir.

Q And your most recent expansion of the pilot waterflood has been in the easterly direction?



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A That's true.

Q Mr. Darden, I believe we're all familiar with the present Rule 701 under which the Commission now operates. Was the pilot waterflood project authorized before present Rule 701 was promulgated by this Commission?

A Yes, it was.

Q I believe the records of the Commission will show that the present Rule 701, concerning waterflood projects, was promulgated by Order 1525, dated November 9th, 1959 following an extended hearing held in Roswell. If I might interrupt the cross examination for just one moment, I would like to read into the record a particular provision of the order promulgating our present Rule 701, for the purposes of discussion.

I'm reading now from Order R-1525, after the findings, the order reads as follows: "It is therefore ordered Paragraph 1 that Rule 701 of the Commission rules and regulations be, and the same is hereby revised to read in its entirety as hereinafter set forth, provided, however, that the allowable provisions contained in revised Rule 701 shall not apply to waterflood projects heretofore authorized by the Commission or to legitimate expansions thereof."

Are you familiar with that particular working of the rule?

A Yes, sir.



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Q Now, Mr. Darden, what was the allowable of this particular pilot project area when it was first authorized. Was it operating under any restrictions?

A There were no restrictions on the producing rates.

Q What is your proposal concerning the allowables to be assigned to your proposed extension of the project area?

A We propose that the unit will be operated under the same rule and basis as our present project as a logical expansion of that project.

Q Now, referring to the language that I just read in Order No. R-1525, the allowable provisions of our present Rule 701 would not apply to this project if it were considered a legitimate expansion of the old project, is that correct?

A I didn't understand it that way. Maybe you had better rephrase the question.

Q All right, I'll rephrase it.

A Or just repeat it, possibly, would be all right.

Q The only reason that your present extension, your proposed extension here of your waterflood project would not be governed by the allowable provisions of our present Rule 701 is because of the language that I just read which, in effect, states that the allowable provisions of Rule 701 will not apply to legitimate expansions of a waterflood project authorized before



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the promulgation of this rule?

A That's true.

Q So far as the allowable issue in this hearing is concerned, it depends upon what we mean by a legitimate expansion of a flood, does it not?

A Well, that's the Commission -- yes, I suppose it is.

Q That's the issue as far as the allowables are concerned?

A I would say probably so. However, I would emphasize that we do consider this to be an expansion of an existing flood. It's in the same reservoir, there is no evidence of any separation, so consequently for us it is an expansion of an existing project.

Q Now, I believe that the order refers to the word "legitimate" expansion, and I'm not sure any of us know what legitimate means. What factors do you think the Commission should take into consideration in determining whether or not an expansion of a flood is a legitimate expansion? Do you have any thoughts on that subject?

A No.

MR. CAMPBELL: May I answer that?

MR. MORRIS: I'll be happy to have you do that.

MR. CAMPBELL: I think it's almost a legal question if you are defining the term legitimate. I think we would take the position that the Commission should consider whether it is in the



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same reservoir, whether the projects are geographically adjacent to each other, whether there is a risk of the abuse of correlative rights in the event there is a change in method of operation of the adjacent waterflood properties.

I believe the findings in the order establishing Rule 701 make some reference to the fact, or to the Commission's conclusion that there is a question at least, a possibility as I recall the word, that to change rates of injection in a waterflood project might result in waste, and I think this is a factor that the Commission should consider. There are probably others, but certainly I think those are important factors in determining whether it is a logical expansion, and it is difficult for me to see how within the same reservoir, from the point of view of efficient operation of the flood and the protection of correlative rights of producers or owners in that field, you can alter the method of allocation of allowables once a project is approved.

MR. MORRIS: Mr. Campbell, since the word legitimate expansion was used in the order promulgating Rule 701, it might be a reasonable inference to make that expansions were contemplated that might be illegitimate.

MR. CAMPBELL: I'm unable and was unable at the time to construe what the Commission had in mind when it made that differentiation between legitimate and illegitimate expansions. I



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think that the Commission, as in other cases, simply must reach a conclusion as to whether or not it is in the interest of the prevention of waste by way of efficiency of the operation of the project, and whether it's in the interest of protection of correlative rights that the same procedures be followed in immediately adjacent properties in the same common reservoir.

I think that's the basic question. If that means that's the definition of legitimate or illegitimate, well, that would be the way I would construe it. I don't think it alters the basic responsibility of the Commission.

MR. MORRIS: Do you think that a difference in ownership between the two areas would be the factor to consider in determining whether particular expansion of a project were legitimate?

MR. CAMPBELL: I do not think so from the point of view of the Commission, and the Commission has in the past apparently considered who the operator is as a factor. Though I have never fully agreed with that, but in this instance, of course, the operator is the same. There might be some justification where the operator isn't the same, on the assumption that the project would not be operated in exactly the same fashion.

Therefore, there might be some doubt as to whether correlative rights would be protected the same by different operators, but



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I don't think that who owns the property is the basic question in this determination as far as, certainly as far as efficient operation and prevention of waste is concerned. It perhaps would have a bearing to some extent on the protection of correlative rights.

MR. MORRIS: Do you feel that one factor that might be considered would be the direction in which the flood was moving at the time the extension to the flood was projected?

A Well --

MR. CAMPBELL: Well, I certainly think it has to, because obviously as you approach an area over which you have no control or no line agreement or no unitized area, your correlative rights begin to be affected, and I think that is a consideration. I think if somebody just blindly moved off in a direction which made it necessary to expand the flood without consideration of efficiency factors in the method of development, that might be a question that they were simply trying to get more allowable, that could be a consideration I suppose, though I don't think that exists here. As long as I'm testifying, I might as well throw that in.

A I might mention, Mr. Morris, that in my description of how this project was expanded, I did not mean to infer that that was the most sound engineering basis for expansion, but we had other considerations; since we did not have lease line cooperation



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we did not have offsetting injection wells on other properties which would have protected correlative rights, we were forced to keep our expansion within our own property.

Q Mr. Darden, do you have an active flood front at the present time in the Northeast Quarter and the North Half of the Southeast Quarter of Section 1?

A Well, by a flood front, if you mean do we have oil moving as a result of our water injection, we do have. Of course, in a pattern waterflood you have a flood front in each five spot, or each pattern, and, of course, since our patterns are not closed up here or over here, we have, you might call it, a flood front, although we wouldn't think of it exactly that way.

We are moving oil as indicated by the response of this well here, Ballard 3-B, and by the response of Ballard 2-B.

Q Mr. Darden, if you drill your injection wells as proposed here, I'm referring specifically to your Well No. 1-B in Section 1, your Well No. 1, Well No. 4-A and Well No. 2 just coming right down your line in Section 1, if you drill those injection wells or convert them to injection wells and begin injecting water into those wells, do you feel that you would have to produce your next row of producing wells immediately to the West of those injection wells at a rate greater than the allowable which you would receive under our present Rule 701?



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A If we could produce them at no more than 84 barrels per day, for example, if there was one injection and one producing well?

Q Right.

A I would say that very definitely we're going to have to produce them at higher rates than that in order to recover the oil, because your production rate is a definite function of your injection rate. If you are putting the water in at a certain rate, and you don't withdraw the fluids that come into the producing well at approximately the same rate, then you are going to have oil driven by that producer and trapped in the formation, and it probably will never be recovered.

Q You are assuming there that you are going to have to inject water in the injection wells mentioned at a rate so high that you would have to produce the wells at a higher rate than 84 barrels a day?

A I'm assuming that because experience in Newmont's project has given us definite proof that injection at rates and pressures below the maximum which we can achieve below the formation's breakdown pressure do not force water into all of the productive sands, so consequently at lower injection rates and lower pressures we are bypassing a considerable volume of oil which will never be recovered.



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Q Moving westward, if you come to the next general tier of injection wells, would you have to inject water into those wells at the same rate you would have to into the tier of injection wells closer to the present project?

A Yes, we would have to, and there are several reasons for it. First is the reason which I have mentioned, that in order to get maximum recovery by waterflooding in this field we know that we have to put the maximum volume at the maximum pressure that we can in each injection well, and that doesn't apply just to one side because if you just put it in say this side so you get efficient flooding on this side well, what are you doing over here? Are you going to be happy with only flooding half the sand on this side simply by reducing your injection rates?

Secondly, without some sort of balance in a pattern flood, you have premature water breakthrough. You have additional waste and loss of the oil in that respect.

Q It's your feeling, I take it, Mr. Darden, that the reservoir characteristics of this particular formation lends itself only to a capacity type flood?

A That's correct.

Q Then, if I may presuppose answers from you, you would not feel that any buffer zone that might be established in this



area between the present project and the proposed extension would be feasible?

A You are correct. We have looked into that idea and have tried to see where it might be workable, and from a recovery standpoint we don't believe that a buffer zone in this field is workable. In other words, we believe that the use of a buffer zone would cause loss of ultimate recovery.

Q Mr. Darden, generally do you remember when your Wells 4-B and 6-B in Section 1 were put on injection?

A It will have to be very generally.

Q That's all right.

A I don't have the data with me on that. I would say they've been on injection approximately a year.

Q Approximately a year?

A Now one other thing I might point out while we are discussing this Newmont performance, we have had the injection rate cut back on these wells for this 4-B and 6-B Ballard for more than six months. By cutback, I mean we have restricted the injection rates to roughly half of what those wells would take, simply because we had evidence that the producing wells offsetting them were responding, and we have hoped that we would be able to accomplish some type of lease line cooperation before we drove any oil off our property. We know this is not the most efficient

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way to flood this, but we have an obligation to protect the correlative rights of our royalty owners, and our own company's oil, so we have had to restrict our injection rates in 5-B, 4-B and 6-B from the Ballard to prevent migration of oil off our property.

That is one additional reason why we are so positive that the formation of this unit and the immediate waterflood development of the unit is necessary to protect correlative rights and from a conservation standpoint.

Q Mr. Darden, is the formation of the unit in any way contingent upon the allowable provisions that are included in the order as a result of the hearing on your waterflood project?

A I would say no. I feel that Newmont, as well as the other operators in the field, recognize that the unit formation is necessary for the most efficient development of the property for the protection of correlative rights, as I've mentioned. I would say that we feel there will definitely be a loss of ultimate recovery if the Commission rules in such a way that we have to artificially restrict injection rates and producing rates.

Q But the formation of the unit itself is not contingent upon the outcome of the waterflood case?

A Well, of course, I don't know.

Q There's nothing in the Unit Agreement to that effect?



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MR. CAMPBELL: No.

A No.

MR. CAMPBELL: No one has signed it yet either.

A No, the Unit Agreement is not signed.

MR. MORRIS: I have no further questions.

MR. NUTTER: Does anyone else have any questions of Mr. Darden?

MR. CAMPBELL: No, I have no more questions.

CROSS EXAMINATION

BY MR. NUTTER:

Q What did this 89.33% of working interest actually represent again?

A That represents the working interest owners within the unit area that have given their tentative approval to the proposal of the unit and of the participation factor.

Q These are the operators that attended the operators' meetings and gave their consent at those meetings?

A Well, that isn't exactly true. There was one operator who was not there who has since given his firm approval. There was one operator who was represented there but who has not had authority from his top management, and we have not heard anything from them one way or the other. So the 89.33% is of the operators that have given positive indication of their approval.



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Q How about royalty ownership in this area, is it all either Federal or state land?

A Yes.

Q Or is there any fee land?

A It's all state or Federal. As a matter of fact, the state owns 40.7% of the acreage in the unit.

Q As to the participation formula, I presume these 89.33% of working interest owners have approved this participation formula based on cumulative primary production up to 12-1-60?

A Yes.

Q Has the regional supervisor of the United States Geological Survey given his consent to the participation formula?

A Yes.

Q Has the Commissioner of Public Lands given his tentative consent to the participation formula?

A He has.

Q The participation formula is the tract percentage formula in direct proportion to the cumulative production in the next column to the left?

A Yes.

Q How was the estimated recovery for the two undrilled tracts determined, Mr. Darden?

A It was determined by the preparation of an isocumulative



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map based on the cumulative production from the Loco Hills Sand, and those two 40-acre tracts which are to be developed in the immediate development pattern, were given a pseudo cumulative credit based upon the center of the contours of the isocumulative map.

Q So, in effect, the offsetting wells were the ones that contributed the figures for the isocumulative map and, in effect, determined how much credit these 40's would get, I presume?

A That's correct.

Q You have actually, in this particular case, requested authority to convert three wells to injection, have you not?

A I believe that's correct.

Q And are each of those three wells direct or diagonal offsets to wells which do offset current injection wells, or wells which have responded to the water injection program?

A Yes, sir, they do.

Q So the three wells for which you have requested authority to convert to water injection are the Ballard B No. 1 in the Southeast Northwest Quarter of 1, 18, 29?

A That's right.

Q The Dixon-Yates Federal No. 2, Southeast Southeast 1, 18, 29 and the Newmont Canfield 1-A in the Northwest Northwest of 7, 18, 30?



A That's right.

Q And presumably any additional wells which would be converted to water injection, you would request administrative approval for those after the response features of Rule 701 have been met?

A Yes.

Q Now, Mr. Darden, you stated that under Rule 701, with the 110 40-acre proration units and the proration units for which additional credit would be given for second or third well on the 40, you would have how much allowable when the thing was fully converted?

A 4872 barrels per day.

Q And your estimated peak, according to Exhibit No. 3, is 4300 barrels per day?

A That's right.

Q You are going to purchase water from Yucca Water Company, will Yucca Water Company have sufficient water available in this area to complete the waterflood project?

A Yes.

Q That's the source of water for your adjoining flood also, is it not?

A That's correct.

Q Now, the Commission recently authorized three additional

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waterfloods just North of this area. Do you know whether the source of water for those projects will be Yucca Water Company or not?

A No, I don't. We have talked with those operators, and it's my understanding that one of the operators has made a contract with another company for water. We have not heard what the other operators are going to do.

Q Has any of those three floods been commenced as yet?

A No, sir.

Q But Yucca does assure there will be sufficient water to carry your flood to its conclusion?

A Yes, sir.

Q Mr. Darden, referring to the three factors which Mr. Campbell mentioned as being important considerations in determining whether a project was a legitimate or logical expansion, he mentioned that the first would be the same reservoir. This is in the same reservoir, I presume?

A Yes, it is.

Q His second consideration was the geographic adjacency of the projects. Are they geographically adjacent?

A Yes, and Exhibit 1 shows that.

Q The third factor he mentioned was the risk of correlative rights being damaged. Do you consider that a factor?

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A I consider that probably the most single important factor in this hearing.

Q Since we're referring to No. R-1525 in this hearing, I'd ask you if you are acquainted with finding No. 9 of that order which reads as follows: "That the establishment of buffer zones between waterflood projects may be necessary when offsetting waterflood projects have varying allowable provision." Rule 701 should, therefore, include a provision for the assignment of special allowables in such buffer zones where it is established at a hearing that correlative rights can not adequately be protected otherwise.

I take it from your previous testimony with regard to the buffer zones that you feel that a buffer zone could not be established which would adequately protect correlative rights?

A That's correct.

Q Or is it that you feel that a buffer zone couldn't be established that wouldn't result in waste?

A Well, I think they're the same problem. If your property within the buffer zone is flooded effectively and there's no waste created, however, if the next stepover where injection rates are reduced, as I understand the buffer zone idea, then you aren't flooding efficiently based on our experience in this field, then consequently you are not only damaging correlative rights for the

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people in the zone or in the area that does not have full injection rates, but you are also creating waste at the same time by not effectively flooding their property.

Q Would you agree that it would be possible to establish a barrier between two projects in which sufficient water was placed into the ground to prevent a pressure differential from one side of the barrier to the other?

A That has been done in some fields, not for that purpose, but, as I understand it, to prevent water from migrating or oil migrating into a gas cap, or something like that. It's possible. I don't see that it would serve any useful purpose here.

Q You do know of water barriers being established between particular areas in pools, though, do you not?

A I have read of some, yes.

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

MR. MORRIS: I have one further question.

CROSS EXAMINATION

BY MR. MORRIS:

Q Mr. Darden, you have testified that the daily expected peak in the waterflood project, when all wells are converted to the project, will be some 572 barrels per day less than the peak that you would be entitled to receive if the project were operated

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under the allowable provisions of Rule 701. With that in mind, would you explain why Rule 701 would not be, and its allowable provisions would not be satisfactory to you in this case?

A Well, frankly, I'm not well enough versed in the ramifications of Rule 701, since we have no projects that operate under it, to know how that would affect us. I would say if we were given a unit allowable with sufficient latitude and transfer of allowables so that we could be assured of not artificially restricting injection rates or producing rates in the portion of the unit which was under development at that time, it probably would not hurt the flood.

MR. MORRIS: No further questions.

MR. NUTTER: Are there any further questions?

REDIRECT EXAMINATION

BY MR. CAMPBELL:

Q The response to the last question will have to be predicated upon the operation of this unit with a unit allowable, would it not?

A Yes.

MR. CAMPBELL: No further questions at this time.

MR. NUTTER: Are there any other questions? Mr. Darden may be excused.

(Witness excused.)



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

MR. CAMPBELL: No, not unless I want to respond to some statements.

MR. NUTTER: Does anyone have anything they wish to offer in Case 2472 or Case 2473?

MR. MORRIS: I have a telegram.

MR. NUTTER: Mr. Morris.

MR. MORRIS: I have a telegram from Graridge Corporation which I will make part of the record in this case, generally concurring with the application of Newmont in this case.

"Graridge Corporation, as a working interest owner in the proposed West Loco Hills Grayburg 4 sand unit, supports Newmont Oil Company's application for approval of this unit for the purpose of conducting secondary recovery operations. Newmont's current secondary recovery project in the Loco Hills Field in the Grayburg 4 sand has demonstrated water flooding to be a sound conservation measure in recovering oil which otherwise would remain in the Grayburg reservoir. Graridge further supports Newmont's application to develop the subject unit as a logical expansion to its Loco Hills waterflood project and that operation of the unit should be conducted in accordance with the same sound engineering practices and program that have resulted in success in this field. We respectfully request that the Oil Conservation Commission grant



approval of the applications made by Newmont through Cases 2472 and 2473 on Docket No. 1-62."

MR. MURPHY: Mr. Chairman, I would like to enter an appearance for Caprock Water Company, Inc. as their interest appears in this case, and state that they operate under Franchise 178 from the Public Service Commission, and they wanted me to state for them that they are ready, willing and able to furnish water to this project at the posted price.

MR. NUTTER: Would you identify yourself?

MR. MURPHY: Yes, I am Bert Murphy, I am a consulting engineer from Fort Worth, Texas representing Caprock Water Company.

MR. BRATTON: Howard Bratton on behalf of Humble Oil and Refining Company. Capacity allowables were reviewed in detail in Case 1787 in October of 1959. It is requested that the testimony in that case be considered and made a part of this Case 2473, if Newmont Oil Company's application for expansion of its Loco Hills waterflood project to include the proposed West Loco Hills Grayburg No. 4 sand unit is approved by the Commission, it is recommended that the expansion area be made subject to statewide Rule 701, and if considered appropriate, a buffer zone of reasonable size be established between the existing Loco Hills waterflood project and the proposed area.

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MR. NUTTER: Mr. Bratton, did I understand you to say that you wanted certain testimony in the other case incorporated in the record in this case?

MR. CAMPBELL: We object to that if they want the whole record.

MR. BRATTON: We would ask that if Mr. Campbell objects that the evidence of Humble in that case as to the basic question of the necessity of capacity allowables to prevent waste, that that evidence be considered and be made a part of this record.

MR. MORRIS: If the Examiner please, if Mr. Campbell has no objection, I certainly have no objection to the inclusion of the record of that case being incorporated into this case. However, this case was not advertised for a whole new consideration of the problem of capacity versus restricted allowables.

MR. CAMPBELL: I might say further, if that is done, then it would be incumbent on the Applicant here to present considerable additional evidence with regard to the operation in this particular field. We have not in this case made any attempt to attack the original order, we are seeking authority under the order, testimony is in the record as to the witness's opinion on this particular field, and we certainly would not like to see one side of the testimony in a case involving a particular application, incidentally, and not a general hearing, as I recall it,

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included in this particular case. I think it will make the record unnecessarily large, and in the event that there was an appeal, we certainly would want to have an opportunity to present additional evidence.

MR. NUTTER: Would there be any objection to the Examiner or the Commission taking administrative notice of Case No. 1787?

MR. CAMPBELL: I have no objection. I am reasonably confident they will anyway.

MR. NUTTER: Is that satisfactory with you, Mr. Bratton?

MR. BRATTON: If the Commission please, yes, that's perfectly satisfactory.

MR. NUTTER: Mr. Kellahin.

MR. KELLAHIN: Kellahin, appearing on behalf of Amerada Petroleum Corporation. Amerada Petroleum Corporation certainly has no objection to the formation of this unit, nor the water-flood project as such, but it does object to the allowable features which would be incorporated as a result of this expansion, and urges that the project be placed under the provision of Rule 701.

This, in its essence, amounts to the expansion of a project which consists of something in the vicinity of three sections to something between 11 and 12 sections of land. It appears to be a

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situation of the tail wagging the dog in order to extend the allowable provisions of a going project.

On that basis we don't feel it complies with the provisions of Order No. R-1525, as a legitimate expansion of an existing flood. We second the statement which was made in behalf of Humble Oil and Refining that the project be placed under Rule 701 with a buffer zone provision, if that appears appropriate and necessary. In essence, the testimony of the witness presented on behalf of Newmont is solely to the effect that in his opinion the formation lends itself only to a capacity type flood, a matter which we feel was settled by the Commission when it adopted its Order R-1525.

MR. NUTTER: Anything further?

MR. CAMPBELL: I would like to make a statement in that regard.

MR. NUTTER: Mr. Campbell.

MR. CAMPBELL: This question was, in my judgment, not settled as to each reservoir in that case definitely, and the Commission recognized this in making provision in several respects for exceptions under the rule, or for different treatment under certain conditions, and I think the examination of the evidence offered in this case, the percentage of ownership of Newmont, the operator of the present flood, will definitely

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reveal that they do not own a majority interest in this unit area.

It has been my impression that the Commission has consistently encouraged the formation of units, particularly for secondary recovery, rather than facing a situation where constant lease line agreements had to be initiated and entered into to expand these waterfloods, and I would like to state again that it is the position of the applicant here that this is, in effect, a legitimate and not an illegitimate expansion of the existing waterflood.

MR. NUTTER: Thank you. Anyone else? We'll take these cases under advisement and recess the hearing until 1:30.

(Whereupon, a recess was taken until 1:30 P.M.)

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STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

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 5th day of January, 1962.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:

June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the hearing of Case No. 2472-2473 heard by me on 1-4, 1962.
[Signature], Examiner
New Mexico Oil Conservation Commission

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NEWMONT OIL COMPANY

FORT WORTH NATIONAL BANK BUILDING

FORT WORTH 2, TEXAS

March 20, 1962

Mr. A. J. Losee
Losee and Stewart
Carper Building
Artesia, New Mexico

Dear Mr. Losee:

The casing programs on the West Loco Hills Unit which you requested are as follows:

Newmont Canfield "A" No. 1
8" @ 422' w/50 sacks
7" @ 2671' w/100 sacks

Dixon-Yates Ballard "B" No. 1
8½" @ 425' (No cement
7" @ 2520' record)

Dixon-Yates Federal No. 2
8½" @ 441' (No cement
7" @ 2701' record)

We are also enclosing four copies of the West Loco Hills Unit map showing the development pattern.

Very truly yours,

NEWMONT OIL COMPANY


Frank Darden

FD:hd
Enclosures

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF)
NEWMONT OIL COMPANY FOR THE APPROVAL)
OF AN EXPANSION OF THE NEWMONT OIL)
COMPANY LOCO HILLS WATERFLOOD PROJECT)
TO INCLUDE THE WEST LOCO HILLS GRAY-)
BURG NO. 4 SAND UNIT AREA IN TOWNSHIP)
17 SOUTH, RANGE 29 EAST, TOWNSHIP 18)
SOUTH, RANGE 29 EAST, TOWNSHIP 18 SOUTH,)
RANGE 30 EAST, N.M.P.M., EDDY COUNTY,)
NEW MEXICO.)

No. 2473

APPLICATION

COMES NOW Newmont Oil Company by its Attorneys, Campbell & Russell, and states:

1. It is the proposed Unit Operator in the West Loco Hills Grayburg No. 4 Sand Unit Area and it has filed its Application with the Commission for the approval of said Unit.

2. It is the Operator of the Newmont Oil Company Loco Hills Waterflood Project in Eddy County, New Mexico, heretofore authorized by the Commission, and the proposed West Loco Hills Grayburg No. 4 Sand Unit Area is immediately adjacent thereto and is a logical and reasonable expansion thereof.

3. There is attached hereto as Exhibit 1 a plat showing the location of all presently proposed injection wells within the unit area. Applicant presently proposes to commence injection of water in the following described injection wells:

Ballard B No. 1 - SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 1, Township 18 South,
Range 29 East

Dixon Yates Federal No. 2 - SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 1, Township
18 South, Range 29 East

Newmont Canfield No. 1-A - NW $\frac{1}{4}$ NW $\frac{1}{4}$ Section 7, Township
18 South, Range 30 East

4. Logs of the proposed injection wells are not available.
5. A description of the casing program in the presently proposed injection wells is attached hereto as Exhibit 2.
6. It is proposed to inject water into the West Loco Hills Grayburg No. 4 Sand between the depths of 2767 feet and 2792 feet as shown on the Gamma Ray Neutron Log of the Newmont-Ballard Well No. B-6 located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ of Section 1, Township 18 South, Range 29 East, Eddy County, New Mexico. Water is to be obtained by purchase from Yucca Water Company.
7. The approval of the expansion of the Loco Hills Waterflood Project will be in the interest of conservation, will prevent waste, and correlative rights will be protected.

WHEREFORE, Applicant requests the Commission to set this matter down for hearing before its Examiner, publish notice as required by law and, after hearing, issue its order approving the expansion of said project as requested.

Respectfully submitted,

NEWMONT OIL COMPANY

By

Lock M. Campbell

CAMPBELL & RUSSELL
P. O. Drawer 640
Roswell, New Mexico

Its Attorneys

DATED: December 7, 1961

GOVERNOR
EDWIN L. MECHEM
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER



STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

P. O. BOX 871
SANTA FE

January 30, 1962

Re: CASE NO. 2473

ORDER NO. R-2178

APPLICANT:

Newmont Oil Company

Mr. Jack Campbell
Campbell & Russell
P. O. Drawer 640
Roswell, New Mexico

Dear Sir:

Enclosed herewith are two copies of the above-referenced
Commission order recently entered in the subject case.

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ir/

Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

OTHER Mr. Howard Bratton (Humble)

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 1787
Order No. R-1525

APPLICATION OF THE OIL CONSERVATION
COMMISSION ON ITS OWN MOTION TO
CONSIDER THE PROMULGATION OF STATEWIDE
RULES GOVERNING THE OPERATION OF WATER
FLOOD PROJECTS INCLUDING THE ASSIGNMENT
OF PROJECT ALLOWABLES.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 14, 1959, at Roswell, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 9th., day of November, 1959, the Commission, a quorum being present, having considered the application and the evidence adduced, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the Oil Conservation Commission called this case on its own motion to evaluate, in view of some two years' experience, the effect of unrestricted water flood production (capacity allowables) on the market for primary oil production in New Mexico as well as on primary exploration and development. Further, the Commission deemed it necessary to reconsider, in the light of additional engineering data, the question whether curtailed rates of production in water flood projects cause the physical waste of oil.

(3) That the evidence presented in this case, including the records in Case Nos. 1324 and 1294, which records were incorporated by reference into the record of this case, preponderates in favor of the engineering viewpoint that reasonable curtailment of production in water flood projects does not result in a loss of ultimate oil recovery.

(4) The evidence presented in this case establishes to the satisfaction of the Commission that unrestricted production in water flood projects has had a significant and adverse impact on the market available for primary oil produced in New Mexico, and to continue the practice of unrestricted water flood production will aggravate the market problem to a critical degree.

(5) That unrestricted water flood production has contributed to decreased normal unit allowables for Southeast New Mexico which in turn have been a factor in the decline of primary exploration and development.

(6) That the secondary recovery of oil by means of water flooding the producing formation is desirable as a conservation measure and should be encouraged by a statewide rule establishing allowables for such projects which are in excess of normal unit allowables but less than capacity allowables.

(7) That the evidence presented indicates that a relatively constant project injection rate is beneficial from the standpoint of economics and operational efficiency and convenience, and thus the maximum allowable for any particular water flood project should, insofar as possible and practicable, remain constant. Therefore, area allowable factors based upon past allowable histories in each of the marketing areas in New Mexico should be utilized rather than the current monthly normal unit allowables in calculating the water flood project allowable.

(8) That operators of water flood projects heretofore authorized by the Commission have purchased and installed facilities and mechanical equipment designed for producing wells in such projects at rates equal to their capacity to produce. For this reason, as well as for the reason set forth in Finding No. 7, all water flood projects authorized by the Commission prior to the date of this order should be exempted from the water flood allowable provisions of Rule 701 as set forth in this order.

(9) That the establishment of buffer zones between water flood projects may be necessary when offsetting water flood projects have varying allowable provisions. Rule 701 should, therefore, include a provision for the assignment of special allowables to wells in such buffer zones where it is established at a hearing that correlative rights cannot adequately be protected otherwise.

IT IS THEREFORE ORDERED:

(1) That Rule 701 of the Commission Rules and Regulations be and the same is hereby revised to read in its entirety as herein-after set forth; provided however, that the allowable provisions contained in revised Rule 701 shall not apply to water flood projects heretofore authorized by the Commission or to legitimate expansions thereof.

-3-

Case No. 1787
Order No. R-1525

RULE 701. INJECTION OF FLUIDS INTO RESERVOIRS

A. Permit for Injection Required

The injection of gas, liquefied petroleum gas, air, water, or any other medium into any reservoir for the purpose of maintaining reservoir pressure or for the purpose of secondary recovery or the injection of water into any formation for the purpose of water disposal shall be permitted only by order of the Commission after notice and hearing, unless otherwise provided herein.

B. Method of Making Application

Application for hearing to obtain authority for the injection of gas, liquefied petroleum gas, air, water, or any other medium into any formation for any reason shall include the following:

1. A plat showing the location of the proposed injection well or wells and the location of all other wells within a radius of two miles from said proposed injection well or wells, and the formation from which said wells are producing or have produced. The plat shall also indicate the lessees, if any there be, within said two-mile radius.
2. The log of the proposed injection well or wells if same is available.
3. A description of the proposed injection well or wells' casing program.
4. Other pertinent information including the name and depth of the zone or formation into which injection will be made, the kind of fluid to be injected, the anticipated amounts to be injected, and the source of said injection fluid.

C. Salt Water Disposal Wells

The Secretary-Director of the Oil Conservation Commission shall have authority to grant an exception to the requirements of Rule 701(A) for water disposal wells only, without notice and hearing, when the waters to be disposed of are mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use, and when said waters are to be disposed of into a formation of greater than Triassic age (Lea County only) which is non-productive of oil and/or gas within a radius of two miles from the proposed injection well, providing that any water occurring naturally within said disposal formation is mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use.

To obtain such administrative approval, operator shall submit in triplicate to the Commission at Santa Fe, Commission form entitled, "Application to Dispose of Salt Water by Injection Into a Porous Formation Not Productive of Oil or Gas," together with evidence that a copy of said application was sent to the State Engineer Office, Box 1079, Santa Fe, as well as to all offset operators and the surface owner of the land upon which the well is located.

If no objection is received within 15 days from the date of receipt of the application, and the Secretary-Director is satisfied that all of the above requirements have been complied with, and that the well is to be cased and cemented in such a manner that there will be no danger to oil, gas, or fresh water reservoirs, an administrative order approving the disposal well may be issued. In the event that the application is not granted administratively, it shall be set for public hearing, if the operator so requests.

The Commission may dispense with the 15-day waiting period if waivers of objection are received from all offset operators and the surface owner, and no objection is made by the State Engineer Office.

D. Pressure Maintenance Projects

1. Pressure maintenance projects are defined as those projects in which fluids are injected into the producing horizon in an effort to build up and/or maintain the reservoir pressure in an area which has not reached the advanced or "stripper" state of depletion.

2. The project area and the allowable formula for any pressure maintenance project shall be fixed by the Commission on an individual basis after notice and hearing.

E. Water Flood Projects

1. Water flood projects are defined as those projects in which water is injected into a producing horizon in sufficient quantities and under sufficient pressure to stimulate the production of oil from other wells in the area, and shall be limited to those areas in which the wells have reached an advanced state of depletion and are regarded as what is commonly referred to as "stripper" wells,

2. The project area of a water flood project shall comprise the proration units upon which injection wells are located plus all proration units which directly or diagonally offset the injection tracts and have producing wells completed on them in the same formation; provided

however, that additional proration units not directly nor diagonally offsetting an injection tract may be included in the project area if, after notice and hearing, it has been established that such additional units have wells completed thereon which have experienced a substantial response to water injection.

3. The maximum allowable assigned to any water flood project area shall be determined by multiplying the number of proration units in the project area times the basic Area Allowable Factor (as determined in subparagraph 4 below) times the appropriate proportional (depth) factor for the pool as set forth in Rule 505 (b). The allowable assigned to any water flood project area in which there are proration units containing more than one well shall be increased by an amount of oil equal to 0.333 times the basic Area Allowable Factor times the proportional (depth) factor for the pool for each such additional well on the proration unit; provided however, that the additional allowable for any such proration unit shall not exceed the basic Area Allowable Factor times the proportional (depth) factor for the pool.

The project area allowable may be produced from any well or wells in the project area in any proportion.

The production from a water flood project area shall be identified as such on the monthly Commission Form C-115.

Nothing herein contained shall be construed as prohibiting the assignment of special allowables to wells in buffer zones after notice and hearing. Special allowables may also be assigned in the limited instances where it is established at a hearing that it is imperative for the protection of correlative rights to do so.

4. The basic 40-acre Area Allowable Factor for the counties of Lea, Eddy, Chaves, and Roosevelt shall be 42. The basic 40-acre Area Allowable Factor for the counties of San Juan, Rio Arriba, Sandoval, and McKinley shall be 52.

5. Water flood projects shall be expanded and additional wells placed on injection only upon authority from the Commission after notice and hearing or by administrative procedure in accordance with the following:

In order for a well in a water flood project to be eligible for administrative approval for conversion to water injection, it must be established to the

-6-

Case No. 1787
Order No. R-1525

satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response, and that the proposed injection well is located on a water injection pattern which will result in a thorough and efficient sweep of oil by the water flood.

To obtain administrative approval for the conversion of any well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for conversion of additional wells to water injection, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulation by water flood. Applicant shall also attach plats of the water flood project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to convert additional wells to water injection has been sent to each operator offsetting the proposed injection well and to the State Engineer.

The Secretary-Director may, if in his opinion there is need for conversion of additional wells to water injection, authorize such conversion without notice and hearing, provided that no offset operator nor the State Engineer objects to the proposed conversion within fifteen (15) days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the proposed injection well and from the State Engineer.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

S E A L

A. L. PORTER, Jr., Member & Secretary

ir/

Note I can see no
divinity which hedgeeth
about a legitimate expansion
as a matter of fact the
existing water floods should be
and no special recognition
except for the fact that
priming problems could
have arisen. Each one of the
ought to rest on its own &
we cannot guarantee the
sanctity of anything of this kind
when circumstances & techniques
continually change.

GOVERNOR
EDWIN L. MECHEM
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER



STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

P. O. BOX 871
SANTA FE

January 9, 1962

MEMORANDUM

TO: GOVERNOR EDWIN L. MECHEM
LAND COMMISSIONER E. S. JOHNNY WALKER

FROM: A. L. PORTER, JR., SECRETARY-DIRECTOR

SUBJECT: CASE NO. 2473, APPLICATION OF NEWMONT OIL COMPANY
FOR EXPANSION OF ITS LOCO HILLS WATERFLOOD PROJECT

Newmont Oil Company, the applicant in the subject case, was authorized by Order No. R-1267, entered in Case No. 1511 on October 25, 1958, to institute a pilot waterflood project in the Loco Hills Pool in Eddy County. The initial pilot project has been expanded administratively on several previous occasions. In the subject application, which was heard by Examiner Nutter on January 4, 1962, Newmont seeks permission to expand this waterflood project to encompass an additional 5,320 acres in the Loco Hills Pool.

The most important issue in the case concerns the allowable to be assigned to the wells in the area of the expanded project. The applicant requests that the entire waterflood project, as expanded, be assigned capacity allowables. The protestants in the case, which include Humble Oil and Refining Company and Amerada Petroleum Corporation, suggest that the expanded area of the waterflood be governed by the provisions of Rule 701 which would restrict allowables.

The following information is offered for your consideration in determining this question:

Order No. R-1267 which authorized Newmont to institute the pilot waterflood project in the Loco Hills Pool was entered

January 9, 1962

MEMORANDUM

TO: GOVERNOR EDWIN L. MECHEM
LAND COMMISSIONER E. S. JOHNNY WALKER

at a time when all waterflood projects could be produced at capacity. Following the authorization of this pilot project, the Commission promulgated Rule 701 restricting allowables to be assigned to waterflood projects. The order promulgating Rule 701 contained the following proviso:

"Provided however, That the allowable provisions contained in revised Rule 701 shall not apply to waterflood projects heretofore authorized by the Commission or to legitimate expansions thereof."

There is little in the record or in the findings of this order to clarify what is meant by "legitimate expansions." The decision in the subject case depends upon the interpretation the Commission places upon this term. If the proposed expansion is "legitimate" then it would follow that capacity allowables should be authorized; if the proposed expansion is not "legitimate" then it would follow that allowables should be restricted by the provisions of Rule 701.

At the hearing of the present case, some discussion was had concerning this issue and several factors were suggested by various participants in determining the "legitimacy" of the proposed expansion:

- (1) Whether the expansion is in the same geologic formation as the existing flood.
- (2) Whether the expansion is geographically adjacent to the existing flood.
- (3) Whether the expansion is owned or operated by the owner or operator of the existing flood.
- (4) Whether the direction of the existing flood would continue into the expanded area.
- (5) Whether capacity allowables are necessary to protect correlative rights.
- (6) Whether capacity allowables are necessary to prevent waste, and in this connection, whether a change in the rate of injection in proceeding from an existing flood to an expansion thereof would cause waste.

January 9, 1962

MEMORANDUM

TO: GOVERNOR EDWIN L. MECHEM
LAND COMMISSIONER E. S. JOHNNY WALKER

The applicant in this case had given no consideration and therefore had no recommendation to make concerning the establishment of a buffer zone between the existing project and its proposed expansion. As stated above, Newmont's request is for capacity allowables upon the premise that the proposed expansion is a legitimate expansion of the previously authorized project. It is felt that the order to be entered in this case should make a declaration of Commission policy with regard to the issue of allowables inasmuch as there will be other cases brought to the Commission similar in nature to the subject case.

Following the Commission hearing scheduled for Wednesday, January 17, 1962, Examiner Nutter will be available to discuss the subject case and to present his recommendations.

CLASS OF SERVICE
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unless its deferred char-
acter is indicated by the
proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
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The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination.

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DANIEL S NUTTER, NEW MEXICO OIL CONSERVATION COMMISSION=
CAPITOL BLDG SANTA FE NMEX=

RE: CASES 2472 AND 2473 DOCKET NO 1-62.

GRARIDGE CORPORATION AS A WORKING INTEREST OWNER IN
THE PROPOSED WEST LOCO HILLS GRAYBURG #4 SAND UNIT SUPPORTS
NEWMONT OIL COMPANY'S APPLICATION FOR APPROVAL OF THIS UNIT
FOR THE PURPOSE OF CONDUCTING SECONDARY RECOVERY OPERATIONS.
NEWMONT'S CURRENT SECONDARY RECOVERY PROJECT IN THE LOCO
HILLS FIELD IN THE GRAYBURG #4 SAND HAS DEMONSTRATED WATER
FLOODING TO BE A SOUND CONSERVATION MEASURE IN RECOVERING
OIL WHICH OTHERWISE WOULD REMAIN IN THE GRAYBURG RESERVOIR.
GRARIDGE FURTHER SUPPORTS NEWMONT'S APPLICATION TO DEVELOP
THE SUBJECT UNIT AS A LOGICAL EXPANSION TO ITS LOCO HILLS
WATERFLOOD PROJECT AND THAT OPERATION OF THE UNIT SHOULD BE
CONDUCTED IN ACCORDANCE WITH THE SAME SOUND ENGINEERING
PRACTICES AND PROGRAM THAT HAVE RESULTED IN SUCCESS IN THIS
FIELD. WE RESPECTFULLY REQUEST THAT THE OIL CONSERVATION
COMMISSION GRANT APPROVAL OF THE APPLICATIONS MADE BY NEWMONT
THROUGH CASES 2472 AND 2473 ON DOCKET NO 1-62=
GRARIDGE CORP O H REAUGH VICE PRESIDENT==

2472 2473 1-62 =4 =4 2472 2473 1-62.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

No. 1-62

DOCKET: EXAMINER HEARING - THURSDAY - JANUARY 4, 1962

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or
Elvis A. Utz, as alternate examiner:

CASE 2448: (Continued)

Application of Pan American Petroleum Corporation for a pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks permission to institute a pressure maintenance project on its C. J. Holder, State Holder Oil Unit, State "CA", State Oil Unit and Gallegos Canyon Unit Leases, San Juan County, New Mexico, in the Cha Cha-Gallup Oil Pool with water injection initially to be through five wells located in Sections 8 and 16, Township 28 North, Range 13 West, and Section 23, Township 28 North, Range 12 West, and requests adoption of special rules to govern the operation of said project.

CASE 2449: (Continued)

Application of Pan American Petroleum Corporation for a pressure maintenance project, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks permission to institute a pressure maintenance project on its Navajo Tribal "H" and Gallegos Canyon Unit Leases, San Juan County, New Mexico, in the Totah-Gallup Oil Pool with water injection initially to be through five wells located in Section 35, Township 29 North, Range 13 West, Section 12, Township 28 North, Range 13 West, and Sections 13 and 24, Township 29 North, Range 14 West, and requests adoption of special rules to govern the operation of said project.

CASE 2429: (Continued)

Application of Standard Oil Company of Texas for approval of the Jurnegan Point Unit Agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Jurnegan Point Unit Agreement embracing 10,240.84 acres, more or less, of State and fee lands in Township 24 South, Ranges 24 and 25 East, Eddy County, New Mexico.

CASE 2452: (Continued)

Application of Southwest Production Company for an order pooling all mineral interests in the Basin-Dakota Gas Pool in the W/2 of Section 7, Township 30 North, Range 11 West, San Juan County, New Mexico. Interested parties include Maleta Y. Brimhall, Phoenix, Arizona, and Barbara Brimhall Burnham, Aztec, New Mexico.

CASE 2463:

Application of Amerada Petroleum Corporation for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to complete its L. M. Lambert Well No. 2, located in Unit G of Section 6, Township 20 South, Range 37 East, Lea County, New Mexico, as a dual completion (conventional) in the Grayburg and McKee zones in the Monument Field, with the production of gas from the Grayburg zone to be through a string of 1 1/2-inch tubing and the production of gas from the McKee zone to be through a parallel string of 2 3/8-inch tubing.

CASE 2464:

Application of Amerada Petroleum Corporation for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to complete its State NJ "A" Well No. 1, located in Unit A of Section 2, Township 25 South, Range 37 East, Lea County, New Mexico, as a triple completion (combination) in the McKee, Fusselman and Ellenburger zones in the North Justis Field, with the production of oil from the Fusselman and Ellenburger zones to be through tubing installed within parallel strings of 3 1/2-inch casing and the production of oil from the McKee zone to be through a parallel string of 2 7/8-inch casing, all of said casing strings to be cemented in a common well bore.

CASE 2465:

Application of Skelly Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to complete its Hobbs "N" Well No. 1, located in Unit D of Section 8, Township 18 South, Range 35 East, Lea County, New Mexico, as a dual completion (conventional) in the Vacuum-Abo Pool and in an undesignated Drinkard pool, with the production of oil from both zones to be through parallel strings of 2 1/16-inch tubing.

CASE 2466:

Application of Shell Oil Company for a 320-acre non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to establish a

320-acre non-standard gas proration unit in the Eumont Gas Pool, comprising the S/2 of Section 22, Township 21 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to the Turner Well No. 7, located at an unorthodox location 1650 feet from the South line and 330 feet from the West line of said Section 22.

CASE 2467:

Application of Shell Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to complete its Livingston Well No. 12, located 4620 feet from the South line and 660 feet from the East line of Section 4, Township 21 South, Range 37 East, Lea County, New Mexico, as a dual completion (tubingless) in the Drinkard and Blinebry Oil Pools, with the production of oil from both zones to be through parallel strings of 2 7/8-inch casing cemented in a common well bore.

CASE 2468:

Application of Shell Oil Company for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to complete its Livingston Well No. 11, located 3300 feet from the South line and 660 feet from the West line of Section 3, Township 21 South, Range 37 East, Lea County, New Mexico, as a triple completion (tubingless) in the Drinkard Oil, Tubb Gas and Blinebry Oil Pools, with the production of oil from the Drinkard and Blinebry zones and the production of gas from the Tubb zone to be through parallel strings of 2 7/8-inch casing cemented in a common well bore.

CASE 2469:

Application of El Paso Natural Gas Company for an order establishing special rules and regulations for the Lusk-Strawn Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order establishing special rules and regulations for the Lusk-Strawn Pool, Lea County, New Mexico, including provisions for 160-acre proration units and a limiting gas-oil ratio of 4000 to 1.

CASE 2470:

Application of J. R. Cone for a 40-acre non-standard gas proration unit and for an exception to Order No. R-1670, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the establishment of a 40-acre non-standard gas proration unit in the Blinebry Gas Pool comprising the NE/4 SE/4 of Section 21, Township 21 South, Range 37 East, Lea

County, New Mexico, said unit to be dedicated to the Anderson Well No. 2, located 1650 feet from the South line and 330 feet from the East line of said Section 21. Applicant further seeks an exception to Rule 34 (A) of the special rules and regulations for the Blinebry Gas Pool as contained in Order No. R-1670, to permit the gas produced from said Anderson Well No. 2 to be produced into a low-pressure separator only.

CASE 2471:

Application of Leonard Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to complete its Federal Ginsberg Well No. 8, located in Unit M of Section 31, Township 25 South, Range 38 East, Lea County, New Mexico, as a dual completion (conventional) in the Langlie-Mattix and Justis-Blinebry Pools, with the production of oil from both zones to be through parallel strings of 2 3/8-inch tubing, separation of the zones to be by a liner re-entry shoe seal assembly.

CASE 2472:

Application of Newmont Oil Company for approval of a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the West Loco Hills Grayburg No. 4 Sand Unit Agreement, covering 5320 acres, more or less, in Townships 17 and 18 South, Ranges 29 and 30 East, Eddy County, New Mexico.

CASE 2473:

Application of Newmont Oil Company for expansion of its Loco Hills Waterflood Project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks permission to expand its Loco Hills Waterflood Project to include the proposed West Loco Hills Grayburg No. 4 Sand Unit Area, comprising 5320 acres, more or less, in Townships 17 and 18 South, Ranges 29 and 30 East, Eddy County, New Mexico.

Case 2473

LAW OFFICES OF
CAMPBELL & RUSSELL
P. O. DRAWER 640
ROSWELL, NEW MEXICO

JACK M. CAMPBELL
JOHN F. RUSSELL

TELEPHONES
MAIN 2-4641
MAIN 2-4642

December 12, 1961

Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Enclosed for filing please find Application of Newmont Oil Company for the approval of an expansion of the Newmont Oil Company Loco Hills Waterflood Project. The enclosed is sent to you for the purpose of publication.

We will furnish you with Exhibit 1 and Exhibit 2 in a few days and we will forward a copy of the complete application to the State Engineer at that time.

Very truly yours,

Jack M. Campbell
Jack M. Campbell

For CAMPBELL & RUSSELL

JMC:np

Enclosure

*Reck
Mailed
12-20-61
AL*

JACK M. CAMPBELL
JOHN F. RUSSELL

LAW OFFICES OF
CAMPBELL & RUSSELL
P. O. DRAWER 640
ROSWELL, NEW MEXICO

TELEPHONES
MAIN 2-4641
MAIN 2-4642

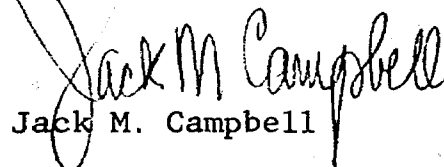
December 21, 1961

Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Enclosed for addition to our application in
Case No. 2473 please find three copies each of Exhibits
"1" and "2".

Very truly yours,


Jack M. Campbell

For CAMPBELL & RUSSELL

JMC:np

Enclosures

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
New Mexico EXHIBIT NO. <u>2</u>
CASE NO. <u>2473</u>

UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE
WEST LOCO HILLS GRAYBURG NO. 4 SAND UNIT AREA
COUNTY OF EDDY
STATE OF NEW MEXICO
NO. _____

THIS AGREEMENT, entered into as of the _____ day of _____, 1961, by and between the parties subscribing, ratifying or consenting hereto, and herein referred to as the "parties hereto,"

W I T N E S S E T H:

WHEREAS, the parties hereto are the owners of working, royalty, or other oil and gas interests in the Unit Area subject to this agreement; and

WHEREAS, the Mineral Leasing Act of February 25, 1920, 41 Stat. 437, as amended, 30 U.S.C. Secs. 181 et seq., authorizes Federal leasees and their representatives to unite with each other, or jointly or separately with others, in collectively adopting and operating under a cooperative or unit plan of development or operation of any oil or gas pool, field or like area, or any part thereof, for the purpose of more properly conserving the natural resources thereof whenever determined and certified by the Secretary of the Interior to be necessary or advisable in the public interest; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature, Sec. 1, Chap. 88, Laws 1943, (Sec. 7-11-39 N.M. Statutes Annotated 1953 Compilation), to consent to and approve the development or operation of State lands under agreements made by lessees of State land jointly or severally with other lessees of State

lands, with lessees of the United States, or with others, where such agreements provide for unit operation or development of part or all of any oil or gas pool, field or area; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by Sec. 3, Chap. 88, Laws 1943, as amended by an Act of the Legislature, Sec. 1, Chap. 162, Laws 1951, (Sec. 7-11-41 N.M. Statutes Annotated 1953 Compilation) to amend with the approval of lessee, evidenced by the lessee's execution of such agreement or otherwise, any oil and gas lease embracing State lands so that the provisions and the length of the secondary term of said lease as to lands within such unit area will conform and coincide with the provisions and the term of such agreement for the unit operation and development or part of all of any oil or gas pool, field, or area; and

WHEREAS, the Oil Conservation Commission of the State of New Mexico is authorized by an Act of the Legislature, Chap. 72, Laws 1935 as amended by Chap. 193, Laws 1937, by Chap. 166, Laws 1941 and by Chap. 168, Laws 1949 (Sec. 65-3-1 et seq., N. M. Statutes Annotated 1953 Compilation) to approve this agreement and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the West Loco Hills Grayburg No. 4 Sand Unit covering the land hereinafter described to give reasonably effective control of operations herein; and

WHEREAS, it is the purpose of the parties hereto to enable institution and consummation of secondary recovery operations, to conserve natural resources, prevent waste, and secure other benefits obtainable through development and operation of the Grayburg No. 4 Sand under the terms, conditions and limitations herein set forth.

NOW, THEREFORE, in consideration of the premises and

the promises herein contained, the parties hereto commit to this Agreement their respective interests in the below defined Unit Area, and agree severally among themselves as follows:

1. ENABLING ACT AND REGULATIONS: The Mineral Leasing Act of February 25, 1920, as amended, supra, and all valid pertinent regulations, including operating and unit plan regulations, heretofore issued thereunder or valid, pertinent and reasonable regulations hereafter issued thereunder are accepted and made a part of this Agreement as to Federal lands, provided such regulations are not inconsistent with the terms of this Agreement; and as to non-Federal lands, the oil and gas operating regulations in effect as of the effective date hereof governing drilling and producing operations, not inconsistent with the terms hereof or the laws of the State of New Mexico, are hereby accepted and made a part of this Agreement.

2. UNIT AREA: The area specified on the map attached hereto, marked Exhibit "A", is hereby designated and recognized as constituting the West Loco Hills Grayburg No. 4 Sand Unit Area, hereinafter referred to as "Unit Area," containing 5320 acres, more or less.

Exhibit "A" shows, in addition to the boundary of the Unit Area, the boundaries and identity of tracts and leases in said area to the extent known to the Unit Operator. Exhibit "B" attached hereto is a schedule showing to the extent known to the Unit Operator the acreage, percentage and kind of ownership of oil and gas interests in all land in the Unit Area. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest or interests as are shown in said map or schedule as owned by such party. Exhibits "A" and "B" shall be revised by the Unit Operator whenever changes in the Unit Area render such revision necessary,

or when requested by the Oil and Gas Supervisor, hereinafter referred to as "Supervisor," or when requested by the Commissioner of Public Lands of the State of New Mexico, hereinafter referred to as "Commissioner," and not less than seven copies of the revised exhibits shall be filed with the Supervisor and copies thereof shall be filed with the Commissioner and with the Oil Conservation Commission of the State of New Mexico, hereinafter referred to as "Commission."

The above described Unit Area shall, when practicable, be expanded to include therein any additional tract or tracts regarded as reasonably necessary or advisable for the purposes of this agreement, or shall be contracted to exclude lands not within any participating area, whenever such expansion or contraction is necessary or advisable to conform with the purposes of this agreement. Such expansion or contraction shall be effected in the following manner:

(a) Unit Operator, with concurrence of at least 65% of the voting interest or on demand of the Director of the Geological Survey, hereinafter referred to as "Director," after preliminary concurrence by the Director, or on demand of the Commissioner and Commission, shall prepare a notice of proposed expansion or contraction describing the contemplated changes in the boundaries of the Unit Area, the reasons therefor, and the proposed effective date thereof, preferably the first day of a month subsequent to the date of notice.

(b) Said notice shall be delivered to the Supervisor and Commissioner and Commission, and copies thereof mailed to the last known address of each working interest owner, lessee and lessor whose interests are affected, advising that 30 days will be allowed for submission to the Unit Operator of any objections.

(c) Upon expiration of the 30-day period provided

in the preceding item (b) hereof, Unit Operator shall file with the Supervisor, Commissioner and the Commission evidence of mailing of the notice of expansion or contraction and a copy of any objections thereto which have been filed with the Unit Operator, together with an application in sufficient number, for approval of such expansion or contraction and with appropriate joinders.

(d) After due consideration of all pertinent information, the expansion or contraction shall, upon approval by the Director, Commissioner and the Commission, become effective as of the date prescribed in the notice thereof.

(e) All legal subdivisions of unitized lands (i.e. 40 acres by Government survey or its nearest lot or tract equivalent in instances of irregular surveys, however, unusually large lots or tracts shall be considered in multiples of 40 acres, or the nearest aliquot equivalent thereof, for the purpose of elimination under this subsection), no parts of which are entitled to be in a participating area within 7 years after the first day of the month following the effective date of this agreement, shall be eliminated automatically from this agreement, effective as of the first day thereafter, and such lands shall no longer be a part of the Unit Area and shall no longer be subject to this agreement, unless at the expiration of said 7-year period diligent drilling or reworking operations are in progress on unitized lands not entitled to participation, in which event all such lands shall remain subject hereto for so long as drilling or reworking operations are continued diligently, with not more than 90 days' time elapsing between the completion of one such well and the commencement of drilling or reworking the next such well, except that the time allowed between such wells shall not expire earlier than 30 days after the expiration of any period of

time during which drilling or reworking operations are prevented by a matter beyond the reasonable control of Unit Operator as set forth in the section hereof entitled "Unavoidable Delay"; provided that all legal subdivisions of lands not in a participating area and not entitled to become participating under the applicable provisions of this agreement within 10 years after said first day of the month following the effective date of this agreement shall be eliminated as above specified.

Determination of creditable "Unavoidable Delay" time shall be made by Unit Operator and subject to the approval of the Director and Commissioner. The Unit Operator shall, within 90 days after the effective date of any elimination hereunder, describe the area so eliminated to the satisfaction of the Director, Commissioner and the Commission and promptly notify all parties in interest.

If conditions warrant extension of the 10-year period specified in this subsection 2(e), a single extension of not to exceed 2 years may be accomplished by consent of the owners of 90% of the current unitized working interest and 60% of the current unitized basic royalty interests (exclusive of the basic royalty interests of the United States or of the State of New Mexico), on a total nonparticipating-acreage basis, respectively, with approval of the Director and Commissioner, provided such extension is submitted to the Director and Commissioner not later than 60 days prior to the expiration of the said 10-year period.

Any expansion of the Unit Area pursuant to this section which embraces lands theretofore eliminated pursuant to this subsection 2(3) shall not be considered automatic commitment or recommitment of such lands.

3. UNITIZED LAND AND UNITIZED SUBSTANCES. All oil

and gas in the hereinabove described land and subsequently admitted land effectively committed to this agreement only as to the Loco Hills Grayburg No. 4 Sand, together with the surface rights of ingress and egress, are unitized under the terms of this agreement and are herein referred to as "Unitized Substances," and said land, as to the Unitized Substances, shall constitute the land herein referred to as "Unitized Land" or "Land Subject to this Agreement." The parties hereto recognize the existence of that certain Agreement dated April 1, 1958, between the Loco Hills Pressure Maintenance Association, Inc., as "Association" The Individual Stockholders of the Loco Hills Pressure Maintenance Association, Inc., as "Operators," and Valley Gas Corporation, as "Valley." The unitization of gas in the Loco Hills Grayburg No. 4 Sand under this Unit Agreement is subject to all of the rights and privileges held by Valley Gas Corporation under said Agreement of April 1, 1958.

The Loco Hills Grayburg No. 4 Sand shall be construed to mean the sand and reservoir encountered in the drilling of the Newmont-Ballard Well No. B-6 between the depths of 2767 feet and 2792 feet, as shown on the Gamma Ray Neutron Log of said well, which well is located in the SE/4 SW/4 NE/4 of Section 1, Township 18 South, Range 29 East, Eddy County, New Mexico, and will herein be referred to as "Unitized Formation."

4. UNIT OPERATOR. Newmont Oil Company is hereby designated as Unit Operator and by signature hereto as Unit Operator for the development and production of Unitized Substances as herein provided. Whenever reference is made herein to the Unit Operator, such reference means the Unit Operator acting in that capacity and not as an owner of interest in Unitized Substances, and the term "Working Interest Owner" when used herein shall include or refer to Unit Operator as the

owner of a working interest when such interest is owned by it.

The term "Working Interest Owner," as used herein shall mean the owner of such an interest committed hereto as may be obligated to pay or bear, either in cash or out of production, or otherwise, a portion of all costs and expenses of drilling, developing, producing and operating the Unitized Land under this agreement and the Unit Operating Agreement.

The term "Royalty Interest Owner," as used herein shall mean a party who owns a right to or interest in any portion of the Unitized Substances or proceeds thereof, other than a Working Interest Owner.

5. RESIGNATION OR REMOVAL OF UNIT OPERATOR. Unit Operator shall have the right to resign at any time, but such resignation shall not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after notice of intention to resign has been served by Unit Operator on all working interest owners and the Director, Commissioner and the Commission, unless a new Unit Operator shall have been selected and approved and shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period.

The resignation of Unit Operator shall not release Unit Operator from any liability or default by it hereunder occurring prior to the effective date of its resignation.

The Unit Operator shall be subject to removal by at least two committed working interest owners owning at least seventy-five per cent (75%) of the voting interests, based on the percentage participations assigned to tracts in the participating area, exclusive of the working interest owner who is the Unit Operator. Such removal shall be effective upon notice thereof to the Director and Commissioner.

In all such instances of resignation or removal, until a successor Unit Operator is selected and approved, as hereinafter provided, the working interest owners shall be jointly responsible for the performance of the duties of Unit Operator and shall, not later than 30 days before such resignation or removal becomes effective, appoint a common agent to represent them in any action to be taken hereunder.

The resignation or removal of Unit Operator under this agreement shall not terminate its right, title or interest as the owner of a working interest or other interests in unitized substances, but upon the resignation or removal of Unit Operator becoming effective, such Unit Operator shall deliver possession of all equipment, materials and appurtenances used in conducting the unit operations as owner by the working interest owners to the new duly qualified successor Unit Operator or to the owners thereof if no such new Unit Operator is elected, to be used for the purpose of conducting unit operation hereunder. Nothing herein shall be construed as authorizing removal of any material, equipment and appurtenances needed for the preservation of any wells.

6. SUCCESSOR UNIT OPERATOR. Whenever the Unit Operator shall tender his or its resignation as Unit Operator or shall be removed as hereinabove provided, the working interest owners shall, by majority vote based on the percentage participations assigned to tracts in the participating area, select a successor Unit Operator; provided that if a majority but less than seventy-five per cent (75%) of the working interest owners qualified to vote are owned by one party to this agreement, a concurring vote of one or more additional working interest owners shall be required to select a new Operator and provided, further, no working interest owner who has just been removed as the Unit Operator may vote for self-succession.

Such selection shall not become effective until (a) Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and (b) the selection shall have been approved by the Director and Commissioner.

7. ACCOUNTING PROVISIONS AND UNIT OPERATING AGREEMENT. All costs and expenses incurred by Unit Operator in conducting unit operations hereunder shall be paid and apportioned among and borne by the working interest owners in accordance with the agreement or agreements entered into by and between the Unit Operator and the working interest owners, whether one or more, separately or collectively. Any agreement or agreements entered into between the working interest owners and the Unit Operator, as provided in this section, whether one or more, are herein referred to as the "Unit Operating Agreement." Such Unit Operating Agreement shall also provide the manner in which the working interest owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases, or other independent contracts and such other rights and obligations as between Unit Operator and the working interest owners as may be agreed upon by the Unit Operator and the working interest owners; however, no such Unit Operating Agreement shall be deemed either to modify the terms and conditions of this Unit Agreement or to relieve the Unit Operator of any right or obligation established under this Unit Agreement, and in case of any inconsistency or conflict between the Unit Agreement and the Unit Operating Agreement, this Unit Agreement shall prevail. Three (3) true copies of any Unit Operating Agreement executed pursuant to this section shall be filed with the Supervisor and two (2) true copies filed with the Commissioner, prior to approval of this Agreement.

8. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise specifically provided herein, the exclusive right, privilege and duty of exercising any and all rights of the parties hereto including surface rights, which are necessary or convenient for the prospecting for, producing, storing, allocating and distributing the unitized substances are hereby granted and delegated to and shall be exercised by the Unit Operator as herein provided. Acceptable evidence of title to said rights shall be deposited with said Unit Operator and, together with this Agreement, shall constitute and define the rights, privileges and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land or to any lease, or to any operating agreement or to any royalty or working interest, it being understood that under this Agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

9. DISCOVERY. Inasmuch as wells capable of producing unitized substances in paying quantities (to-wit: quantities sufficient to repay the cost of drilling and producing operations with a reasonable profit) from the Loco Hills Grayburg No. 4 Sand have already been drilled, tested and completed within the Unit Area and production in paying quantities is currently being taken therefrom, no initial test well is required under the terms of this Unit Agreement. The respective working interest owners as to the NW/4SE/4 of Section 7 and the NE/4 SW/4 of Section 12, both in Township 18 South, Range 29 East, agree to drill wells upon said tracts prior to the time said tracts can reasonably be expected to respond from any water injection and such working interest owners agree that said tracts shall not be entitled to participate until such time as said wells have been completed and are capable

of production.

10. PLAN OF OPERATION. It is recognized and agreed by the parties hereto that the object and purpose of this Agreement is to formulate and to put into effect a secondary recovery project in order to effect the greatest recovery of unitized substances, prevent waste and conserve natural resources. The Unit Operator is authorized to inject gas, oil, liquefied petroleum gas, brine, water or a combination of said substances and any one or more of said substances, irrespective of where said substances are produced, into the Grayburg No. 4 Sand through any well or wells now or hereafter completed therein; provided, however, that the above operations may be conducted by Unit Operator only in accordance with a plan of operation approved by the working interest owners, Supervisor, Commissioner and the Commission. Insofar as the parties hereto have the power and authority, they grant to the Unit Operator the use of brine or water or both from any formation within the Unit Area for injecting into the Grayburg No. 4 Sand.

On or before the effective date of this agreement, Unit Operator shall submit for the approval of the Supervisor, Commissioner and Commission an acceptable plan of development and operation for the unitized land which, when approved by the Supervisor, Commissioner and the Commission, shall constitute the further drilling and operating obligations of the Unit Operator under this agreement for the period specified therein. Thereafter, from time to time before the expiration of any existing plan, the Unit Operator shall submit for the approval of the Supervisor, Commissioner and Commission a plan or plans for an additional specified period for the development and operation of the unitized land. Said initial plan and all revisions thereof shall be as complete and

adequate as the Supervisor and Commissioner may determine to be necessary for timely operations and development consistent herewith. Said plan or plans shall be modified or supplemented when necessary to meet changed conditions or to protect the interests of all parties to this agreement. Reasonable diligence shall be exercised in complying with the obligations of the approved plan of development and operation. After the effective date hereof, no further wells, except such as may be necessary to afford protection against operations not under this agreement or such as may be specifically approved by the Supervisor, Commissioner and Commission, shall be drilled except in accordance with a plan of development approved as herein provided.

11. PARTICIPATION. The lands platted on Exhibit "A" and described in Exhibit B hereto are recognized as reasonably proved to be productive of unitized substances in paying quantities and are hereby designated and fixed as the "initial participating area."

In said Exhibit B attached hereto and made a part hereof, there is listed and numbered the various tracts within the initial participating area, and set opposite each tract is a figure which represents the percentage participation to which such tract shall be entitled if all of said tracts are committed hereto as of the effective date of this agreement. In the event less than all tracts within the initial participating area are committed hereto as of the effective date of this Agreement, Unit Operator, as soon as practicable after the effective date of this agreement shall file with the Supervisor, Commissioner and Commission a schedule of those tracts within the initial participating area committed hereto as of said effective date, which said schedule shall be designated "Revised Exhibit B" and considered for all purposes as a part

of this agreement. Such Revised Exhibit "C" shall set forth opposite each such committed tract within the initial participating area a revised percentage participation therefor, which shall be calculated by applying the proportion that the total of the committed tract percentage participation factors bear to each of the committed tract percentage participation factors as they are now set out in Exhibit "A", so that the revised percentage participations of the respective tracts will remain in the same ratio one to the other. Such Revised Exhibit "C" unless disapproved by the Director, Commissioner or Commission within 30 days after filing, shall supersede, effective as of the effective date hereof, the percentage participations set forth in Exhibit "B" attached hereto until a further revision or revisions thereof are filed with and approved by the Director, Commissioner and Commission as hereinafter provided. The percentage participation for each tract as shown on Exhibit "B" attached hereto was determined entirely by the total cumulative oil production of each tract and such percentage participation factors, or as may be shown on the Revised Exhibit "C", as above provided, shall govern the allocation of production on and after the effective date of this Unit Agreement until the participating area is revised and the revised percentage participations are filed with and approved by the Director, Commissioner and Commission as hereinafter provided.

Whenever it appears proper to revise the initial participating area to include land then regarded as reasonably proven to be productive of unitized substances in paying quantities or determined to be essential to unit operations, the Unit Operator and the working interest owner or owners of such tracts shall meet and seek to determine, on the basis of estimated recoverable reserves of unitized substances, the

tract percentage participation factor that should be assigned to such tract. If and when such parties agree upon the tract participation percentage factor that should be assigned to such tract the Operator shall submit the matter of revision of the participating area and the percentage participation factors to be assigned to each new tract proposed to be included in the revised participating area, to the working interest owners in the participating area prior to such enlargement. If 75% of the voting interests of such working interest owners approve the revision and tract participating factors then, subject to the approval of the Director, Commissioner and Commission, the participating area shall be revised and the participating percentage for each tract in the enlarged participating area shall be revised, provided, however, that in any such revision the revised percentage participation of the respective tracts which were participating prior to such revision shall remain in the same ratio one to another. Unit Operator shall, within eight (8) months from and after the official date of completion of a unit well occasioning a revision of the participating area, file with the Director, Commissioner and the Commission appropriate instruments outlining and establishing the revised participating area occasioned by such well. The effective date of any enlargement or contraction of the participating area shall be determined by the Unit Operator, subject to the approval of the Director, Commissioner and Commission, in advance of the vote by the working interest owners to consider a revision of the participating area. No land shall be excluded from a participating area on account of depletion of the unitized substances. It is the intent of this section that the participating area shall be comprised of adjoining parcels of land consisting of one or

more Government survey quarter-quarter sections, or lot equivalents in instances of irregular surveys, on each of which parcels there is a well capable of producing unitized substances in paying quantities or which, in the absence of such well thereon, are nevertheless determined to be essential for unit operations; but regardless of any revision of the participating area, nothing herein contained shall be construed as requiring any retroactive adjustment for production obtained prior to the effective date of the revision of the participating area.

In the absence of agreement at any time between the Unit Operator and the Director, Commissioner and Commission as to the proper definition or redefinition of a participating area, the portion of all payment affected thereby may be impounded in a manner mutually acceptable to the owners of working interests, except royalties due (a) the United States and, (b) the State of New Mexico, which shall be determined by the Supervisor and the Commissioner, respectively, to be held as unearned money until a participating area as revised is finally approved and then applied as earned or returned in accordance with determination of the sum due as Federal and State royalty on the basis of such revised and approved participating area.

Whenever it is determined, subject to the approval of the Supervisor as to wells on Federal land and the Commissioner as to wells on State land, that a well drilled under this agreement is not capable of producing in paying quantities or determined not to be essential for unit operations and inclusion of the land on which it is situated in a participating area is unwarranted, production from such well shall, for the purposes of settlement among all parties other than working interest owners, be allocated to the lands on which the well is located so long as the well is not within a participating area. Settlement for working interest benefits from such a

well shall be made as provided in the Unit Operating Agreement.

If, subsequent to the effective date of this agreement, any additional tract within the initial participating area becomes committed hereto under the provisions of Section 28 hereof, or any committed tract within the initial participating area is excluded herefrom under the provisions of Section 27, Unit Operator shall revise Exhibit "B" to show the new percentage participations of the committed tracts in the initial participating area, which revised Exhibit shall, upon its filing and approval by the Director, Commissioner and Commission, supersede as of its effective date, the last previously effective Exhibit "B". In any such revision of Exhibit "B" the revised percentage participations of the respective tracts which were committed hereto prior to such revision shall remain in the same ratio one to another.

12. ALLOCATION OF PRODUCTION. For the purpose of determining any and all benefits accruing under this Agreement each tract committed hereto within the participating area shall have allocated to it a proportion, equal to its percentage participation of all unitized substances produced from the unitized land except any part thereof used in conformity with good operating practices within the participating area for drilling, operating, camp and other production or development purposes for pressure maintenance or secondary recovery operations in accordance with a plan of operation approved by the Supervisor, Commissioner and Commission, or unavoidably lost. The amount of unitized substances allocated to each tract in the participating area shall be deemed to be produced from such tract. It is hereby agreed that production of unitized substances from any part of the participating area shall be allocated as provided herein regardless of whether oil or gas is being produced from any particular tract

committed hereto. If the working interests or the royalty interests in any committed tract are divided with respect to separate parcels or portions of such tract and owned severally by different persons, the percentage participation assigned to such tract shall, in the absence of a recordable instrument among all owners fixing the division of ownership, be divided among such parcels or portions in proportion to the number of surface acres in each.

13. DEVELOPMENT OR OPERATION OF NON-PARTICIPATING LAND. Any party or parties hereto owning or controlling the working interest or a majority of the working interest in any unitized land having thereon a regular well location may, with the approval of the Supervisor as to Federal land and the Commissioner as to State land, and subject to the provisions of the Unit Operating Agreement, at such party's sole risk, cost and expense, drill or work over a well to test the Grayburg No. 4 Sand formation if such location is not within a participating area.

If any well drilled or worked over, as aforesaid, by a working interest owner results in production of unitized substances such that the land upon which it is situated may properly be included in a participating area, such participating area shall be enlarged as provided in this Agreement, and the well shall thereafter be operated by Unit Operator in accordance with the terms of this Agreement and the Unit Operating Agreement.

If any well drilled or worked over, as aforesaid, by a working interest owner obtains production of unitized substances in quantities insufficient to justify the inclusion in a participating area of the land upon which such well is situated, such well may be operated and produced by the party drilling or working over the same subject to the conservation

requirements of this Agreement. The royalties in amount or value of production from any such well shall be paid as specified in the underlying lease and agreements affected.

14. ROYALTY SETTLEMENT. The United States and the State of New Mexico and all royalty owners who, under existing *Contracts are entitled to take in kind a share of the unitized* substances produced from any tract, shall hereafter be entitled to take in kind their share of the unitized substances allocated to such tract, and Unit Operator shall make deliveries of such royalty share taken in kind in conformity with the applicable contracts, laws and regulations. Settlement for royalty interests not taken in kind shall be made by working interest owners responsible therefor under existing contracts, laws and regulations on or before the last day of each month for unitized substances produced during the preceding calendar month; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any royalties due under their leases except that said royalties shall be computed in accordance with the terms of this agreement.

If gas obtained from lands not subject to this agreement is introduced into the unitized land for use in pressure maintenance, stimulation of production or increasing ultimate recovery, which shall be in conformity with a plan first approved by the Supervisor, Commissioner and Commission, a like amount of gas, less appropriate deductions for loss or depletion from any cause, may be withdrawn from the formation into which the gas was introduced, royalty free as to dry gas, but not as to the products extracted therefrom; provided that such withdrawal shall be pursuant to such conditions and formulas as may be prescribed or approved by the Supervisor and the Commissioner; and, provided further, that such right of withdrawal shall terminate on the termination of this agreement. If

liquified petroleum gases obtained from lands or formations not subject to this agreement be injected into the unitized land for the purpose of increasing ultimate recovery, which shall be in conformance with a plan first approved by the Supervisor and Commissioner, part of all of such liquefied petroleum gases may be withdrawn royalty free pursuant to such conditions and formulas as may be prescribed or approved by the Supervisor and Commissioner.

Royalty due the United States shall be computed as provided in the operating regulations and paid in value or delivered in kind as to all unitized substances on the basis of the amounts thereof allocated to unitized Federal land as provided herein at the rate specified in the respective Federal leases, or at such lower rate or rates as may be authorized by law or regulation; provided, that for leases on which the royalty rate depends on the daily average production per well, said average production shall be determined in accordance with the operating regulations as though the participating area were a single consolidated lease.

Royalty due on account of State lands shall be computed and paid on the basis of all unitized substances allocated to such lands, in lieu of actual production from such lands.

15. RENTAL SETTLEMENT. Rental or minimum royalties due on leases committed hereto shall be paid by working interest owners responsible therefor under existing contracts, laws and regulations, provided that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any rental or minimum royalty in lieu thereof due under their leases. Rental or minimum royalty for lands of the United States subject to this agreement shall be paid at the rate specified in the respective

leases from the United States unless such rental or minimum royalty is waived, suspended or reduced by law or by approval of the Secretary of the Interior or his duly authorized representative.

Rentals on State of New Mexico lands subject to this agreement shall be paid at the rate specified in the respective leases, or may be reduced or suspended under the order of the Commissioner pursuant to applicable laws and regulations.

16. CONSERVATION. Operations hereunder and production of unitized substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by or pursuant to State or Federal law or regulations.

17. DRAINAGE. The Unit Operator shall take appropriate and adequate measures to prevent drainage of unitized substances from unitized land by wells on land not subject to this agreement or, pursuant to applicable regulations, pay a fair and reasonable compensatory royalty as determined by the Supervisor for Federal land and by the Commissioner for State land.

18. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions and provisions of all leases, subleases and other contracts relating to exploration, drilling, development or operation for oil or gas of lands committed to this agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect; and the parties hereto hereby consent that the Secretary as to Federal leases and the Commissioner as to State leases shall and each by his approval hereof, or by the approval hereof by his duly authorized representative, does hereby establish, alter, change or revoke the drilling, producing, rental,

minimum royalty and royalty requirements of Federal and State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this agreement, and without limiting the generality of the foregoing, all leases, subleases and contracts are particularly modified in accordance with the following:

(a) The development and operations of lands subject to this agreement under the terms hereof shall be deemed full performance of all obligations for development and operation with respect to each and every part or separately owned tract subject to this agreement, regardless of whether there is any development of any particular part or tract of the Unit Area, notwithstanding anything to the contrary in any lease, operating agreement or other contract by and between the parties hereto, or their respective predecessors in interest, or any of them.

(b) Drilling and producing operations performed hereunder upon any tract of unitized lands will be accepted and deemed to be performed upon and for the benefit of each and every tract of unitized land, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations on all unitized lands pursuant to direction or consent of the Secretary or his duly authorized representative and the Commissioner, shall be deemed to constitute such suspension pursuant to such direction or consent as to each and every tract of unitized land.

(d) Each lease, sublease or contract relating

to the exploration, drilling, development or operation for oil or gas of lands other than those of the United States committed to this agreement, which by its term might expire prior to the termination of this agreement, is hereby extended beyond any such term so provided therein so that it shall be continued in full force and effect for and during the term of this agreement.

(e) Any Federal lease for a fixed term of twenty (20) years or any renewal thereof or any part of such lease which is made subject to this agreement shall continue in force beyond the term provided therein until the termination hereof. Any other Federal lease committed hereto shall continue in force beyond the term so provided therein or by law as to the land committed so long as such lease remains subject hereto.

(f) Each sublease or contract relating to the operation and development of unitized substances from lands of the United States committed to this agreement, which by its terms would expire prior to the time at which the underlying lease, as extended by the immediately preceding paragraph, will expire, is hereby extended beyond any such term so provided therein so that it shall be continued in full force and effect for and during the term of the underlying lease as such term is herein extended.

(g) The segregation of any Federal lease committed to this agreement is governed by the following provision in the fourth paragraph of Section 17 (b) of the Act, as amended by the Act of July 29, 1954, (68 Stat. 583, 585): "Any Federal lease

hereafter committed to any such unit plan embracing lands that are in part within and in part outside of the area covered by any such plan shall be segregated into separate leases as to the lands committed and the lands not committed as of the effective date of unitization: Provided, however, that any such lease as to the nonunitized portion shall continue in force and effect for the term thereof but for not less than two years from the date of such segregation and so long thereafter as oil or gas is produced in paying quantities."

(h) Any lease embracing lands of the State of New Mexico which is made subject to this Agreement shall continue in force beyond the term provided therein as to the lands committed hereto until the termination hereof.

(i) Any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto, shall be segregated as to the portion committed and as to the portion not committed, and the terms of such lease shall apply separately as to such segregated portions commencing as of the effective date hereof. Notwithstanding any of the provisions of this agreement to the contrary, any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease (whether within or without the Unit Area),
(1) if, and for so long as Unitized Substances are capable of being produced in paying quantities from some part of the lands embraced in such lease com-

mitted to this agreement, or (ii) if, and for so long as some part of the lands embraced in such State lease are included in the Participating Area; or (iii) if, at the expiration of the secondary term, the lessee or the Unit Operator is then engaged in bona fide drilling or reworking operations on some part of the lands embraced therein and for so long as such operations are being diligently prosecuted, and if they result in the production of United Substances, said lease shall continue in full force and effect as to all of the lands embraced therein, as provided in (i) or (ii) above.

19. COVENANTS RUN WITH LAND. The covenants herein shall be construed to be covenants running with the land with respect to the interests of the parties hereto and their successors in interest until this agreement terminates, and any grant, transfer or conveyance of interest in land or leases subject hereto shall be and hereby is conditioned upon the assumption of all privileges and obligations hereunder by the grantee, transferee, or other successor in interest. No assignment or transfer of any working interest subject hereto shall be binding upon the Unit Operator until the first day of the calendar month after Unit Operator is furnished with the original, photostatic or certified copy of the instrument of transfer; and no assignment or transfer of any royalty interest shall be binding upon the working interest owner responsible therefor until the first day of the calendar month after said working interest owner is furnished with the original, photostatic or certified copy of the instrument of transfer.

20. EFFECTIVE DATE AND TERM. This agreement shall become effective upon approval by the Director and Commissioner, or their duly authorized representatives, as of the first day

of the month following the date of approval by the Director and the Commissioner and shall remain in effect so long as unitized substances can be produced from the unitized land in paying quantities, i.e. in this particular instance, in quantities sufficient to pay for the cost of producing same, and, should production cease, so long thereafter as diligent operations are in progress for the restoration of production and so long thereafter as such unitized substances can be produced as aforesaid. This agreement shall remain in effect during any period of suspension approved by the Director and the Commissioner as provided for in Section 18 (c) hereof.

This Agreement may be terminated at any time by the working interest owners whose voting interests aggregate not less than ninety percent (90%), subject to the approval of the Director and the Commissioner; notice of any such approval shall be given by Unit Operator to all parties hereto.

Upon termination of this Agreement, the further development and operation of the Unit Area as a unit shall be abandoned, unit operations shall cease and thereafter the parties hereto shall be governed by the terms and provisions of the leases and contracts affecting the separate tracts.

If not otherwise covered by the leases unitized under this Agreement, royalty owners hereby grant working interest owners a period of six (6) months after termination of this Agreement in which to salvage, sell, distribute or otherwise dispose of the personal property and facilities used in connection with unit operations.

21. RATE OF PROSPECTING, DEVELOPMENT AND PRODUCTION.

The Director is hereby vested with authority to alter or modify from time to time in his discretion the quantity and rate of production under this Agreement when such quantity and rate is not fixed pursuant to Federal or State law or does not conform

to any state-wide voluntary conservation or allocation program, which is established, recognized, and generally adhered to by the majority of operators in such State, such authority being hereby limited to alteration or modification in the public interest, the purpose thereof and the public interest to be served thereby to be stated in the order of alteration or modification. Without regard to the foregoing, the Director is also hereby vested with authority to alter or modify from time to time in his discretion the rate of prospecting and development and the quantity and rate of production under this agreement when such alteration or modification is in the interest of attaining the conservation objectives stated in this agreement and is not in violation of any applicable Federal or State Law. It is agreed, further, that no such alteration or modification shall be effective as to any land of the State of New Mexico as to the rate of prospecting and development in the absence of the specific written approval thereof by the Commissioner and as to the quantity and rate of production in the absence of specific written approval thereof by the Commission.

Powers in this section vested in the Director shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than fifteen (15) days from notice.

22. APPEARANCES. Unit Operator shall, after notice to other parties affected, have the right to appear for or on behalf of any and all interests affected hereby before the Department of the Interior and the Commission and to appeal from orders issued under the regulations of said department and/or Commission or to apply for relief from any of said regulations or in any proceedings relative to operations before the Department of the Interior, the Commission or other legally constituted

authority; provided, however, that any other interested party shall also have the right, at his own expense, to be heard in any such proceeding.

23. NOTICES. All notices, demands or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if given in writing and personally delivered to the party or sent by postpaid registered or certified mail, addressed to such party or parties at their respective addresses set forth in connection with the signatures hereto or to the ratification or consent hereof or to such other address as any such party may have furnished in writing to party sending the notice, demand or statement.

24. NO WAIVER OF CERTAIN RIGHTS. Nothing in this Agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State of New Mexico or of the United States or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive.

25. UNAVOIDABLE DELAY. All obligations under this Agreement requiring the Unit Operator to commence or continue drilling or to operate on or to produce unitized substances from any of the lands covered by this Agreement shall be suspended while, but only so long as, the Unit Operator despite the exercise of due care and diligence is prevented from complying with such obligations, in whole or in part, by strikes, acts of God, Federal, State or municipal law or agencies, unavoidable accidents, uncontrollable delays in transportation, inability to obtain necessary materials in open market, or other matters beyond the reasonable control of the Unit Operator whether similar to matters herein enumerated or not.

26. FAIR EMPLOYMENT. In connection with the performance of work on Federal lands under this Agreement, the Operator agrees not to discriminate against any employee or applicant for employment because of race, religion, color or national origin. The aforesaid provision shall include, but not be limited to, the following: Employment, upgrading, demotion or transfer; recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Operator agrees to post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of the non-discrimination clause.

The Operator agrees to insert the foregoing provision in all subcontracts hereunder, except subcontracts for standard commercial supplies or raw materials.

27. LOSS OF TITLE. In the event title to any tract of unitized land shall fail and the true owner cannot be induced to join in this Unit Agreement, such tract shall be automatically regarded as not committed hereto and there shall be such readjustment of future costs and benefits as may be required on account of the loss of such title. In the event of a dispute as to the title to any royalty, working interest or any other interest subject thereto, payment or delivery on account thereof may be withheld without liability for interest until the dispute is finally settled; provided that as to Federal land or leases and State land or leases, no payments of funds due the United States or the State of New Mexico should be withheld, but such funds to the United States shall be deposited as directed by the Supervisor, and such funds of the State of New Mexico shall be deposited as directed by the Commissioner, to be held as unearned money pending final settlement.

Unit Operator as such is relieved from any responsibility for any defect or failure of any title hereunder.

28. NON-JOINDER AND SUBSEQUENT JOINDER. If the owner of any substantial interest is a tract within the Unit Area fails or refuses to subscribe or consent to this Agreement, the owner of the working interest in that tract may withdraw said tract from this Agreement by written notice to the Director, the Commissioner and the Unit Operator prior to the approval of this Agreement by the Director. Any such tract effectively committed as to the working interest and not so withdrawn shall be considered unitized, and any necessary adjustments of royalty occasioned by failure of the royalty and record owner to join will be for the account of the corresponding working interest owner. Any oil or gas interest in lands within the Unit Area not committed hereto prior to submission of this agreement for final approval may thereafter be committed hereto by the owner or owners thereof subscribing or consenting to this Agreement and, if the interest is a working interest, by the owner of such interest also subscribing to the Unit Operating Agreement. After operations are commenced hereunder, the right of subsequent joinder, as provided in this section, by a working interest owner is subject to such requirements or approvals, if any, pertaining to such joinder, as may be provided for in the Unit Operating Agreement. After final approval hereof, joinder by a non-working interest owner must be consented to in writing by the working interest owner committed hereto and responsible for the payment of any benefits that may accrue hereunder in behalf of such non-working interest. Joinder by any owner of a non-working interest, at any time, must be accompanied by appropriate joinder by the owner of the corresponding working interest in order for the interest to be regarded as effectively committed hereto. Joinder to the Unit Agreement by a working interest

owner, at any time, must be accompanied by appropriate joinder to the Unit Operating Agreement if more than one committed working interest owner is involved, in order for the interest to be regarded as effectively committed to this Unit Agreement. Except as may otherwise herein be provided, subsequent joinders to this Agreement shall be effective as of the first day of the month following the filing with the Supervisor and the Commissioner of duly executed counterparts of all or any papers necessary to establish effective commitment of any tract to this Agreement unless objection to such joinder is duly made within sixty (60) days by the Director or the Commissioner.

29. COUNTERPARTS. This Agreement may be executed in any number of counterparts, no one of which needs to be executed by all parties, or may be ratified or consented to by separate instrument in writing specifically referring hereto and shall be binding upon all those parties who have executed such a counterpart, ratification, or consent hereto with the same force and effect as if all such parties had signed the same document and regardless of whether or not it is executed by all other parties owning or claiming an interest in the lands within the Unit Area.

30. TAXES. The working interest owners shall render and pay for their account and the account of the royalty owners all valid taxes on or measured by the unitized substances in and under or that may be produced, gathered and sold from the land subject to this contract after the effective date of this Agreement, or upon the proceeds or net proceeds derived therefrom. The working interest owners of each tract shall and may charge the proper proportion of said taxes to the royalty owners having interest in said tract, and may currently retain and deduct sufficient of the unitized

substances or derivative products, or net proceeds thereof from the allocated share of each royalty owner to secure reimbursement for the taxes so paid. No such taxes shall be charged to the United States or the State of New Mexico or to any lessor who has a contract with his lessee which requires the lessee to pay such taxes.

31. CONFLICT OF SUPERVISION. Neither the Unit Operator nor the working interest owners or any of them shall be subject to any forfeiture, termination or expiration of any rights hereunder or under any leases or contracts subject hereto, or to any penalty or liability on account of delay or failure in whole or in part to comply with any applicable provisions thereof to the extent that the said Unit Operator, working interest owners or any of them are hindered, delayed or prevented from complying therewith by reason of the failure of the Unit Operator to obtain, in the exercise of due diligence, the concurrence of proper representatives of the United States and proper representatives of the State of New Mexico in and about any matters or things concerning which it is required herein that such concurrence be obtained. The parties hereto, including the Commission, agree that all powers and authority vested in the Commission in and by any provisions of this contract are vested in the Commission and shall be exercised by it pursuant to the provisions of the laws of the State of New Mexico and subject in any case to appeal or judicial review as may now or hereafter be provided by the laws of the State of New Mexico.

32. NO PARTNERSHIP. It is expressly agreed that the relation of the parties hereto is that of independent contractors and nothing in this agreement contained, express or implied, or any operations conducted hereunder, shall create or be deemed to have created a partnership or association

between the parties hereto or any of them.

33. BORDER AGREEMENTS. Subject to the approval of the Director and the Commissioner, the Unit Operator, with concurrence of sixty-five per cent (65%) of the working interest owners may enter into a border-protection agreement or agreements with the working interest owners of adjacent lands along the exterior boundary of the Unit Area with respect to the operations in the border area for the maximum ultimate recovery, conservation purposes and proper protection of the parties and interests.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first above written and have set opposite their respective names the date of execution and the address of each of the respective executing parties.

UNIT OPERATOR AND WORKING INTEREST OWNER
NEWMONT OIL COMPANY

By _____
President

ATTEST:

Secretary

Date of Signature: _____

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2-B
CASE NO. 2072-2473

EXHIBIT B
West Loco Hills Unit
Eddy County, New Mexico

Working Interest Owner	Tract No.	Description	Acreage	Cumulative Production to 12-1-60	Tract Per Cent Participation In Unit	Total Unit Per Cent Participation
Participating Acreage - 4,480 Acres						
Bassett and Birney	1	E/2 SW/4 Section 2-18S-29E	80	218,385	2.4064	5.8357
	2	NE/4 SW/4 Section 10-18S-29E	40	118,446	1.3052	1.4402
	3	W/2 NW/4 Section 2-18S-29E	80	108,569	1.1964	1.5731
Bowers	4	N/2 SE/4 Section 11-18S-29E	80	84,184	0.9277	1.4402
Brinson	5	NW/4 SW/4 Section 1-18S-29E	40	130,700	1.4402	1.5731
Cone	6	N/2 NW/4 Section 12-18S-29E	80	142,760	1.5731	1.5731
	7	N/2 SE/4 Section 9-18S-29E				
	8	SE/4 SE/4 Section 9-18S-29E	120	265,287	2.9233	2.9233
Dixon-Yates	9	E/2 NW/4 Section 1-18S-29E	80	225,468	2.4845	
	10	S/2 SE/4 Section 1-18S-29E	80	261,976	2.8868	
		NE/4 & S/2 NW/4				
		Section 12-18S-29E				
	11	NE/4 SW/4 Section 12-18S-29E	240	459,571	5.0642	15.6491
	12	SE/4 Section 12-18S-29E	40	65,550 *	0.7223	
Donnell Drilling Co.	13	N/2 NE/4 Section 13-18S-29E	160	369,046	4.0666	
	14	SE/4 Section 2-18S-29E	80	38,542	0.4247	
	15	NW/4 SW/4 Section 2-18S-29E	160	353,495	3.8953	
Fair	16	SE/4 SW/4 Section 10-18S-29E	40	113,013	1.2453	
	17	SW/4 SW/4 Section 10-18S-29E	40	91,549	1.0088	
	18	SE/4 SW/4 Section 36-17S-29E	40	78,781	0.8681	6.1494
	19	SE/4 SW/4 Section 36-17S-29E	40	122,470	1.3495	
	20	NE/4 SW/4 Section 1-18S-29E	40	123,924	1.3656	
	21	N/2 NE/4 Section 11-18S-29E	80	157,604	1.7367	
	22	NE/4 NW/4 Section 2-18S-29E	40	13,014	0.1434	
	23	SE/4 NW/4 Section 2-18S-29E	40	112,292	1.2374	
	24	SW/4 SW/4 Section 2-18S-29E	40	46,553	0.5130	
	25	E/2 Section 10-18S-29E	320	526,898	5.8061	
	26	E/2 SE/4 Section 4-18S-29E	80	148,533	1.6367	14.6565
	27	E/2 NW/4 Section 10-18S-29E	80	179,454	1.9775	
		SW/4 NW/4 and NW/4 SW/4				
		Section 10-18S-29E				
	28	N/2 NW/4 Section 15-18S-29E	80	175,131	1.9298	
Graridge	29	NW/4 NE/4 Section 15-18S-29E	40	101,219	1.1154	
				22,901	0.2523	5.2750

Handwritten notes:
Total Unit Per Cent Participation
5.8357
1.4402
1.5731
2.9233
2.4845
2.8868
5.0642
0.7223
4.0666
0.4247
3.8953
1.2453
1.0088
0.8681
1.3495
1.3656
1.7367
0.1434
1.2374
0.5130
5.8061
1.6367
1.9775
1.9298
1.1154
0.2523
5.2750

Working Interest Owner	Tract No.	Description	Acreage	Cumulative Production to 12-1-60	Tract Per Cent Participation in Unit	Total Unit Per Cent Participation
Loco Hills Pressure Maintenance						
J. Cleo Thompson	30	SW/4 SW/4 Section 10-18S-29E	40	53,522	0.5898	0.5898
	31	NW/4 NW/4 Section 10-18S-29E	40	87,058	0.9593	
	32	NE/4 Section 9-18S-29E	160	295,784	3.2594	
	33	SW/4 SE/4 Section 9-18S-29E	40	88,496	0.9752	
	34	NE/4 NE/4 Section 15-18S-29E	40	6,246	0.0688	5.2627
Van S. Welch	35	SE/4 SW/4 Section 1-18S-29E	40	146,480	1.6141	1.6141
Yates Brothers	36	W/2 NW/4 Section 1-18S-29E	80	222,503	2.4518	
	37	NE/4 Section 2-18S-29E	160	376,710	4.1511	
	38	NW/4 and NW/4 SW/4 Section 11-18S-29E	200	351,410	3.8723	10.4752
Martin Yates	39	SW/4 SW/4 Section 1-18S-29E	40	130,682	1.4400	1.4400
S. P. Yates	40	S/2 NE/4, NE/4 NE/4 & N/2 SE/4 Section 3-18S-29E	200	288,186	3.1756	
	41	SW/4 and S/2 NW/4 Section 3-18S-29E	240	444,766	4.9010	
	42	S/2 SE/4 Section 3-18S-29E	80	124,305	1.3698	9.4464
Newmont	43	S/2 NE/4 Section 11-18S-29E	80	220,574	2.4306	
	44	W/2 Section 7-18S-30E				
	45	Except SE/4 SW/4 SE/4 SW/4 Section 7-18S-30E	280	850,440	9.3713	
	46	N/2 NW/4 and SE/4 NW/4 Section 18-18S-30E	120	110,358	1.2161	
	47	S/2 SE/4 and NW/4 SE/4 Section 7-18S-30E	120	159,966	1.7627	
	48	NW/4 NE/4 Section 18-18S-30E	40	200,345 **	2.2077	
Non-Participating Acreage - 840 Acres			4,480	61,815	0.6811	17.6695
				9,074,961	100.0000	100.0000
Dixon-Yates	49	NW/4 SW/4 Section 12-18S-29E	40			
	50	SW/4 SW/4 Section 12-18S-29E	40			
	51	SE/4 SW/4 Section 12-18S-29E	40			
	52	SW/4 NE/4 Section 13-18S-29E	40			
	53	SE/4 NE/4 Section 13-18S-29E	40			
Graridge	54	SW/4 NW/4 Section 15-18S-29E	40			
	55	SE/4 NW/4 Section 15-18S-29E	40			
	56	SW/4 NE/4 Section 15-18S-29E	40			

<u>Working Interest Owner</u>	<u>Tract No.</u>	<u>Description</u>	<u>Acreage</u>	<u>Cumulative Production to 12-1-60</u>	<u>Tract Per Cent Participation in Unit</u>	<u>Total Unit Per Cent Participation</u>
Yates Brothers	57	NE/4 SW/4 Section 11-18S-29E	40			
	58	SW/4 SW/4 Section 11-18S-29E	40			
	59	SE/4 SW/4 Section 11-18S-29E	40			
	60	NW/4 NW/4 Section 3-18S-29E	40			
	61	NE/4 NW/4 Section 3-18S-29E	40			
S. P. Yates	62	NW/4 NE/4 Section 3-18S-29E	40			
	63	SW/4 SE/4 Section 11-18S-29E	40			
	64	SE/4 SE/4 Section 11-18S-29E	40			
	65	SW/4 NW/4 Section 12-18S-30E	40			
	66	NE/4 SW/4 Section 18-18S-30E	40			
Newmont	67	SW/4 NE/4 Section 18-18S-30E	40			
	68	NW/4 SE/4 Section 18-18S-30E	40			
	69	NE/4 SE/4 Section 18-18S-30E	40			
			<u>840</u>			

* Includes estimated 65,550 barrels for undrilled location NE SW Section 12-18S-29E.

** Includes estimated 52,095 barrels for undrilled location NW SE Section 7-18S-30E.

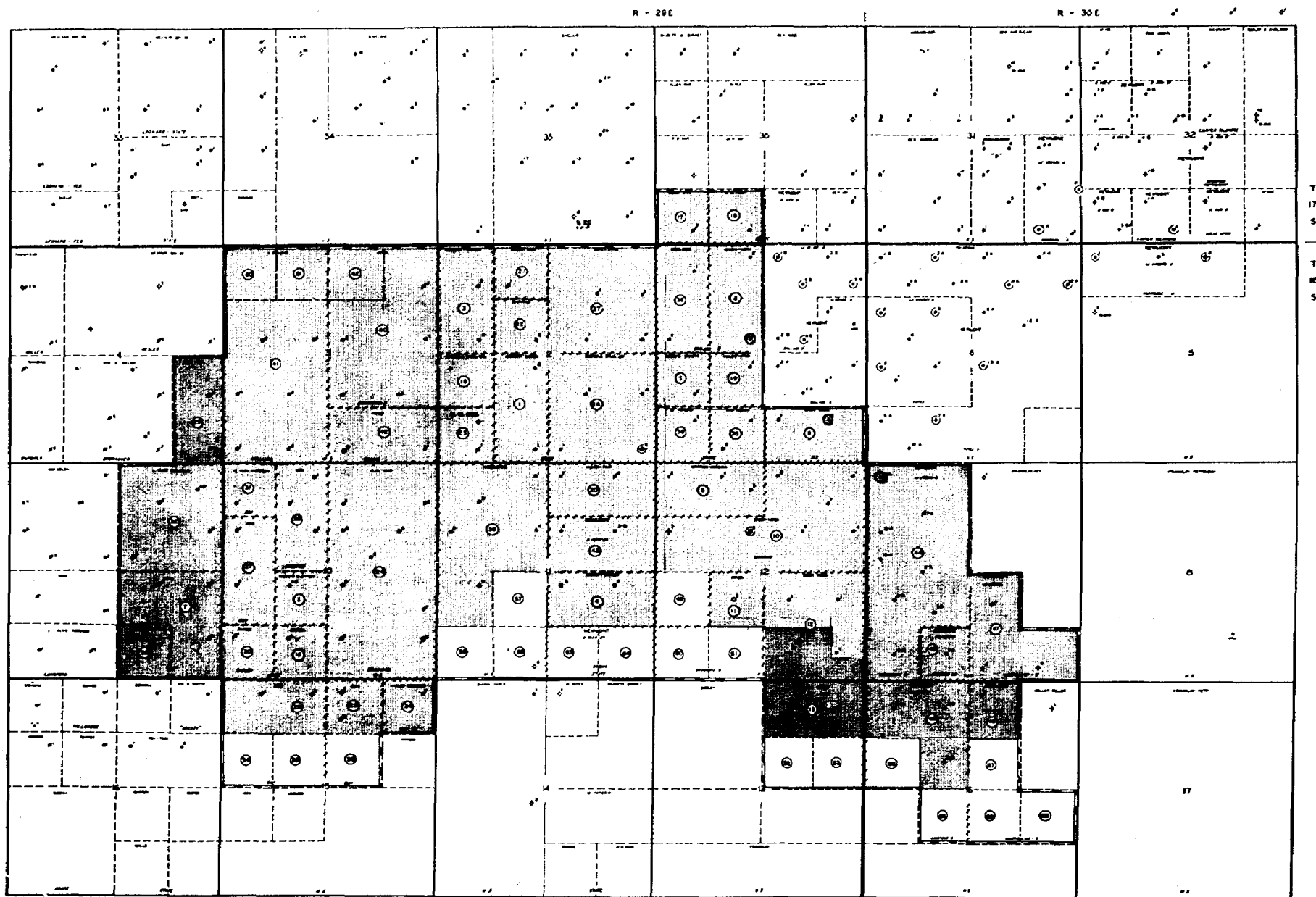


EXHIBIT "B"
ATTACHED TO UNIT AGREEMENT
WEST LOCO HILLS UNIT
EDDY COUNTY, NEW MEXICO

LOCO HILLS
NEWMONT OIL COMPANY
EDDY COUNTY, NEW MEXICO

LEGEND
UNIT BOUNDARY
TRACT BOUNDARY
TRACT NUMBER
PARTICIPATING AREA

EXHIBIT "I"

EXHIBIT "2"

The casing programs for the proposed injection wells in the West Loco Hills Unit are as follows:

Newmont Canfield "A" No. 1
8" @ 422' w/50 sacks
7" @ 2671' w/100 sacks

Dixon-Yates Ballard "B" No. 1
8½" @ 425' (No cement
7" @ 2520' record)

Dixon-Yates Federal No. 2
8½" @ 441' (No cement
7" @ 2701' record)