

CASE 4118: Application of DUGAN
PRODUCTION CORP. FOR DOWNHOLE
COMMINGLING, SAN JUAN COUNTY.

Case Number.

4/18

Application

Transcripts.

Small Exhibits

ETC.

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 7, 1969
EXAMINER HEARING

IN THE MATTER OF:

Application of Dugan
Corporation for downhole
commingling, San Juan
County, New Mexico.

Case 4118

BEFORE: ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING

JUN 19 AM 8 23

MR. UTZ: Case 4118.

MR. HATCH: Case 4118, continued from the April 23, 1969, Examiner Hearing. Application of Dugan Production Corporation for downhole commingling, San Juan County, New Mexico.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, Kellahin & Fox, Santa Fe, appearing for the Applicant, and I have one witness I would like to have sworn.

MR. UTZ: Any other appearances?

(Thereupon, Applicant's Exhibits 1, 2, and 3 were marked for identification.)

THOMAS A. DUGAN,

called as a witness by the Applicant, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Thomas A. Dugan.

Q What connection do you have with the Dugan Production Corporation?

A I am the President and owner.

Q Where are you located?

A Farmington, New Mexico.

Q Are you a Petroleum Engineer?

A Yes, sir.

Q Have you previously testified before the Oil Conservation Commission, and made your qualifications a matter of record?

A Yes, sir.

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

MR. UTZ: Yes.

Q What is proposed by the Applicant in Case 4118?

A We are proposing to commingle downhole the production from the Fruitland and Pictured Cliffs formations from our Federal "I" well, I-4 well.

Q What is the location of that well?

A It is located 1,100 feet from the north line, and 1,600 feet from the west line of Section 1, Township 29 North, Range 14 west, San Juan County, New Mexico.

Q Now, referring to what has been marked as Exhibit No. 1, would you identify that exhibit?

A It is an electric log run by Sunray Midcontinent on their Federal I-3 well, which is approximately 400 feet from the Federal I-4, and it shows the formations that we

proposed to produce from, and with the tops marked on the log.

Q Would you anticipate finding the formation at the same location in the Federal I-4 well?

A Yes.

Q Referring to what has been marked as Exhibit No. 2, would you identify that exhibit?

A It is a gamma ray log, and with the perforations marked on it, where both formations were perforated in the Federal I-4, and it is the only log that has been run on the Federal I-4 well.

Q Is the purpose to show the locations of the perforations in the Fruitland and Pictured Cliffs?

A Yes, sir.

Q Referring to Exhibit No. 3, would you identify that exhibit, and discuss the information shown on it?

A It is a map showing wells in the area. The Federal I-4 has a double circle around it, and beneath the circles we have shown a shut-in pressure with both the Pictured Cliffs and Fruitland formations opened to the wellbore. This is a 48-hour shut-in pressure. Below that we have shown a ten-day shut-in pressure of the Fruitland formation, which is 257 PSIG. The other figures

in red and wells circled are existing Pictured Cliffs wells, and the red figures were the original shut-in pressures.

Q What pressure then would you anticipate you would find in the I-4 well in the Pictured Cliffs formation?

A I would estimate approximately 300 pounds.

Q Now, as compared to the 257 pounds you found in the Fruitland formation, would the 300 -- you say 310?

A Yes, somewhere between 300 and 310.

Q Would that be consistent with the difference in depth of the two formations?

A Yes, sir.

Q Now, have you made any tests on the productivity of the well?

A The well was originally completed and both zones fraced at the same time, utilizing rubber balls to separate the stages between formations. The well was then kicked off, and both zones together produced 2,600 Mcf per day.

Q Did you test the Fruitland zone by itself?

A Yes. Following this, I set a cast iron bridge plug between the two zones at 1,080 feet, and the IP on the Fruitland zone alone was 394 Mcf per day.

Q Would it be possible, would it be economical to produce the Fruitland zone by itself or as a dual

completion?

A No, sir, it would not to drill one to the Fruitland for that amount of gas, and it is not going to be economical to try to dual complete it, either.

Q Is there any other Fruitland production in the vicinity of this well?

A The closest producing Fruitland well is approximately six miles away on the east side of Farmington. Our well is on the west side of Farmington.

Q To your knowledge, this is the only well open to the Fruitland formation within six miles, is this correct?

A Yes, sir.

Q In your opinion, Mr. Dugan, will the commingling of the production from the two gas zones in the well cause any damage to the Fruitland formation or to the Pictured Cliffs formation?

A No, sir, I am sure it won't damage the Pictured Cliffs formation, and it can't damage the Fruitland very severely.

Q There is just nothing there to be damaged?

A No, I wouldn't anticipate damage in any way.

Q Is there any possibility of damage to any of the

offsetting Pictured Cliffs wells?

A No, none.

Q In your opinion, is this in the nature of a salvage operation, insofar as the Fruitland is concerned?

A Yes, sir.

Q Would it be possible to get the gas from the Fruitland by any other means economically?

A Not economically.

Q Would you attempt to do it were you not permitted to commingle?

A No, sir.

Q Were Exhibits 1 thru 3 prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: At this time, I offer in evidence Applicant's Exhibits 1, 2, and 3.

MR. UTZ: Without objection, Applicant's Exhibits 1 thru 3 may be entered into the record.

MR. KELLAHIN: That is all.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Dugan, what kind of liquids do you have?

A The Pictured Cliffs makes some water. The

Fruitland is very dry.

Q How about hydrocarbon liquids?

A None from either zone.

Q Now, what kind of an IP is this, three hour?

A The IP on the Fruitland formation is a regular three hour, one point potential test taken through a three-quarter inch choke.

Q You ran tubing in the hole with a packer, and set a packer at 1,080 feet?

A No, I have a cast iron bridge plug set at 1,080 feet, set on a wire line. Two and seven-eighths inch casing.

Q Then that explains why you didn't get a Pictured Cliffs pressure?

A Yes, sir. Both zones were perforated and fraced at the same time, so I have never had an opportunity to take a Pictured Cliffs pressure by itself.

Q You didn't have at your disposal a small packer that you could go in, small tubing, and get a Pictured Cliffs pressure?

A I had that at my disposal, but I didn't think it economically advisable to do so.

Q In this type of a case, we would certainly like to know what the pressures are in both zones.

A That is why I presented Exhibit No. 3, showing offset pressure from single completed Pictured Cliff well. It's going to be in the neighborhood of 300 pounds.

Q This Sunray well did produce from the Pictured Cliffs?

A No, sir, it is a Dakota well.

Q Well, you just showed that as an electric log to show that the Pictured Cliffs --

A It was the only electric log available since I didn't run one on the Federal I-4, and it is the best log to show the formation tops, and where they are in relationship to each other.

Q And you say this well is producing from the Mesa Verde at the present time?

A No, the log is producing on the Federal I-3, is a Dakota well, and is producing from the Dakota.

Q Wasn't there some Mesa Verde production in this area at one time?

A That Twin Mounds well is not shown on my plat, but it is approximately a mile south of that Russell Federal well of Pubco's, the one that shows 307, that

was a Mesa Verde well. It was completed originally as a gas well in the Mesa Verde, and made about three-quarters of a million Mcf, and then quit producing, and then Pubco completed it in the upper zone, and Pubco completed it, and it made oil in the upper zone. That is Pubco Russell Federal 2.

Q Of all these wells around your well, did any of them get any kind of Pictured Cliffs pressure, that you know of?

A No, sir. There was apparently no interest in the Pictured Cliffs in that immediate area when the rest of the wells were drilled, and they are all drilled to the Dakota formation. The wells to the southeast here are in West Kutz Field, the ones that I show. That is the end of West Kutz.

Q When you were taking the 267 combined pressure, you don't feel that the Pictured Cliffs was bleeding off into the Fruitland formation?

A I feel it could have to some extent, and that is on a 48-hour shut-in pressure, so I am saying that the 267 PSIG combination pressure is probably low for the Pictured Cliffs, by itself.

Q But you are estimating it around 300 pounds?

A Yes, sir, because of the wells in West Kutz, and the Russell Federal Well to the west of us.

Q Those wells did have pressures?

A Yes, sir, the pressures shown in red are original shut-in Pictured Cliffs pressures, and those are single completed wells, single zone.

Q Do you have the 2 7/8 cemented in this well?

A Yes, sir.

Q Circulated?

A No, sir.

Q How much cement do you have behind it?

A Well, I think I calculated one-hundred percent fill-up would have circulated, although it did not circulate. We cemented 2 7/8, 6.5 pound J-55, 8 round EUE tubing set at 1,268 feet, cemented with 75 sacks of Class A cement.

Q Do you have a washed out hole, or do you think the cement --

A I am sure the hole was enlarged to some extent.

Q Do you feel you got a pretty good cement job clear up above the Fruitland?

A I am positive of that.

MR. UTZ: Any other questions of the witness?

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Dugan, in response to a question by Mr. Utz, you said there might have been some bleeding of the Pictured Cliffs gas into the Fruitland. That would be only under shut-in conditions, wouldn't it?

A Only shut-in conditions. During the 48-hour shut-in period, the end of which this pressure was taken.

Q Under producing conditions, there would be no migration of gas from the Pictured Cliffs into the Fruitland, would there, in your opinion?

A No, sir.

MR. UTZ: The nearest Pictured Cliffs production is to the west of this about 2 miles?

THE WITNESS: Yes, it is about in the middle there of West Kutz.

MR. UTZ: What is the closest production to the east?

THE WITNESS: To the east, I would say it would be the end of Fulcher-Kutz-Pictured Cliffs, which is there at the Country Club, which would make it about 8 miles from here.

MR. UTZ: But you are pretty sure that

this is a separate pool from the Fulcher pool?

THE WITNESS: I am sure it is separate from the Fulcher Pool, and I am reasonably sure it is separate from West Kutz.

MR. UTZ: Would this be on strike pretty much with West Kutz?

THE WITNESS: Yes, sir.

MR. UTZ: You have some production down south here, too, on strike, haven't you, three Pictured Cliffs wells down near Farmington?

THE WITNESS: Yes, those are in West Kutz.

MR. UTZ: This could be an extension of West Kutz, could it not?

THE WITNESS: It could be, but I do not believe it is.

MR. UTZ: Any other questions? The witness may be excused. Any statements?

MR. KELLAHIN: That is all.

MR. UTZ: We will take the Case under advisement.

I N D E XWITNESSPAGE

THOMAS A. DUGAN

Direct Examination by Mr. Kellahin

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Cross Examination by Mr. Utz

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Redirect Examination by Mr. Kellahin

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EXHIBITSMARKEDADMITTED IN
EVIDENCEApplicant's Exhibits
1, 2, and 3

2

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STATE OF NEW MEXICO)
) SS,
 COUNTY OF BERNALILLO)

I, SAMUEL MORTELETTE, Court Reporter in and
 for the County of Bernalillo, State of New Mexico,
 do hereby certify that the foregoing and attached
 Transcript of Hearing before the New Mexico Oil
 Conservation Commission was reported by me, and
 that the same is a true and correct record of the
 said proceedings, to the best of my knowledge, skill
 and ability.

Samuel B. Mortelette

My Commission expires:
 December 6, 1972.

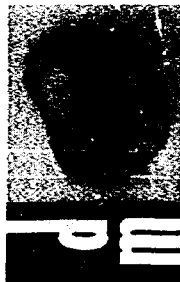
I do hereby certify that the foregoing is
 a complete record of the proceedings in
 the Examiner hearing of Case No. 4118,
 heard by me on *May 7*, 1969.

James C. [Signature], Examiner
 New Mexico Oil Conservation Commission

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6491 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 23, 1969

EXAMINER HEARING

IN THE MATTER OF:

Application of Dugan Production
Corporation for downhole commingling,
San Juan County, New Mexico.

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) Case No. 4118
)
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)

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

JUL 6 AM 8 21

MR. UTZ: Case 4118.

MR. HATCH: Case 4118. Application of Dugan Production Corporation for downhole commingling, San Juan County, New Mexico.

The Commission also received a request from the applicant in this case that it be continued to May seventh.

MR. UTZ: Case 4118 will be continued to May seventh.

STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, GLENDA BURKS, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Witness my Hand and Seal this 30th day of April, 1969.

Glenda Burks
 NOTARY PUBLIC

My Commission Expires:

March 12, 1973.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4118 heard by me on April 23, 1969.
[Signature] Examiner
 New Mexico Oil Conservation Commission
April 23



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

May 14, 1969

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMijo
MEMBER

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

Mr. Jason Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: Case No. 4118
Order No. R-3752

Applicant:
Dugan Production Corp.

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

ALP/ir

Copy of order also sent to:

Hobbs OCC x

Artesia OCC

Aztec OCC x

Other

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. 4118
Order No. R-3752

APPLICATION OF DUGAN PRODUCTION
CORPORATION FOR DOWNHOLE COMMINGLING,
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 7, 1969,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 14th day of May, 1969, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, 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, Dugan Production Corporation, is
the owner and operator of the Federal "I" Well No. 4, located in
the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West,
NMPM, San Juan County, New Mexico.
- (3) That the subject well is capable of producing only a
very small amount of gas from either or both of the undesignated
Fruitland and Pictured Cliffs gas pools in which it is completed.
- (4) That the applicant proposes to produce both of the
subject zones through a single string of 2 7/8-inch casing,
commingling the production in said casing.
- (5) That there is very little pressure differential between
the low reservoir pressures existing in both of the subject zones.

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CASE No. 4118
Order No. R-3752

(6) That it would be uneconomical to dually complete the subject well.

(7) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling in the well-bore.

(8) That the proposed commingling may result in the recovery of additional gas from each of the subject pools, thereby preventing waste, and will not violate correlative rights.

(9) That production tests should be conducted, prior to commingling, to determine the production from each zone.

IT IS THEREFORE ORDERED:

(1) That the applicant, Dugan Production Corporation, is hereby authorized to complete its Federal "I" Well No. 4, located in the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West, NMPM, San Juan County, New Mexico, in such a manner as to produce gas from an undesignated Fruitland gas pool through perforations from 860 feet to 865 feet and to produce gas from an undesignated Pictured Cliffs formation through perforations from 1203 feet to 1208 feet, commingling the production from each of said zones in the well-bore until further order of the Commission:

PROVIDED HOWEVER, that the production of each zone shall be established and future production allocated to the Fruitland and Pictured Cliffs zones of the subject well in accordance with the following procedure:

1. Prior to commingling, a 3-hour initial potential test of the Fruitland zone shall be conducted. (Test #1.)
2. Subsequent to commingling, a 3-hour initial potential test of the commingled Fruitland and Pictured Cliffs zones shall be conducted. (Test #2.)
3. Determine the Pictured Cliffs allocation of production factor as follows:

$$(PC_f) = \frac{\text{Test \#2} - \text{Test \#1}}{\text{Test \#2}}$$

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CASE No. 4118
Order No. R-3752

4. Determine the monthly allocation of production as follows:

- a. Pictured Cliffs gas production = $PC_f \times$ commingled gas production.
- b. Fruitland gas production = commingled gas production less calculated Pictured Cliffs gas production.

(2) 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


DAVID F. CARGO, Chairman


ALEX J. ARNSPERGER, Member


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


esr/

1. Prior to coamingling, a 3 hour initial potential test shall be conducted with the Inmittant zone. (Test #1) —

2. The 3 hour initial potential of the ~~combined~~ coamingled zone stream shall be determined. (Test #2)

3. Determine the ^{Pictured Cliffs} ~~Inmittant~~ production allocation factor as follows:

$$(PC_f) = \frac{\text{Test #2} - \text{Test #1}}{\text{Test #2}}$$

5. Determine the monthly allocation of production as follows:

(a) Pictured Cliffs production = $(PC_f) \times \text{coamingled production}$

(b) Inmittant production = coamingled production less calculated ^{Pictured Cliffs} ~~Inmittant~~ production.

Case 4118
Heard 5-7-69
Rec. 5-8-69

Grant Thomas A. Ruger
permission to combine
the undesignated Shuttles
with the undesignated P.C.
in 278" casing.

This unusual request should
be granted only because of
the following circumstances.

1. The zones are both in
an undesignated area.
2. The pressures are low,
below 300 psi.

3. Both zones are low
Marginal producers.
& even tho it is a new
well the zones are in
the malvoje stage.

Thos. A. Ruger

Post Office Box 234
Zip Code 87401

DUGAN PRODUCTION CORP.

THOMAS A. DUGAN, President

709 BLOOMFIELD RD.
FARMINGTON, NEW MEXICO

April 12, 1969

TELEPHONE: 325-9184 Office
325-5694 Home

Area Code 505

APR 14 1969

Handwritten signature/initials

Mr. A. L. Porter
Oil Conservation Commission
Box 2088
Santa Fe, New Mexico 87501

Re: Case 4118
Federal I #4

Dear Mr. Porter:

We are requesting that the captioned case be continued to
a later date as I plan to be on the Four Corners Geological
trip on April 23.

Sincerely,

continue to may 7th

Thomas A. Dugan
Thomas A. Dugan

dw

cc: Emery Arnold
Oil Conservation Comm., Aztec

Jim Jacobs

DOCKET MAILED

Date 4-23-69

Docket No. 15-69

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 21, 1969

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

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

CASE 3405: (Reopened) (Continued from the May 7, 1969 Examiner Hearing)

In the matter of Case No. 3405 being reopened pursuant to the provisions of Order No. R-3081, which order established 640-acre spacing for the North Indian Hills-Morrow Gas Pool, Eddy County, New Mexico, for a period of one year after first pipeline connection in the pool. All interested parties may appear and show cause why said pool should or should not be developed on 320-acre spacing units.

CASE 4131: Application of Gulf Oil Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Jalmat and South Eunice oil pools, Lea County, New Mexico, in the wellbores of six wells located as follows:

TOWNSHIP 21 SOUTH, RANGE 36 EAST

Arnott Ramsay (NCT-D) Well No. 6 - Unit K - Section 33
Arnott Ramsay (NCT-D) Well No. 7 - Unit M - Section 33
Arnott Ramsay (NCT-D) Well No. 8 - Unit N - Section 33
Arnott Ramsay (NCT-D) Well No. 9 - Unit L - Section 33
J. F. Janda (NCT-B) Well No. 4 - Unit O - Section 32

TOWNSHIP 22 SOUTH, RANGE 36 EAST

J. F. Janda (NCT-F) Well No. 8 - Unit C - Section 4

CASE 4132: Application of Pan American Petroleum Corporation for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for three wells located in Unit D, E, and P of Section 27, Township 18 South, Range 31 East, Shugart Field, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of salt water produced in two unlined surface pits located in the E/2 of said Section 27.

Examiner Hearing - May 21, 1969

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Docket No. 15-69

- CASE 4133: Application of Skelly Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the West Dollarhide Drinkard Unit Area comprising 3,533.52 acres, more or less, of Fee, Federal, and State lands in Townships 24 and 25 South, Range 38 East, Lea County, New Mexico.
- CASE 4134: Application of Skelly Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its West Dollarhide Drinkard Unit Area by the injection of water into the Tubb-Drinkard formation through 43 wells located in Townships 24 and 25 South, Range 38 East, Dollarhide Tubb-Drinkard Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.
- CASE 4135: Application of Roy E. Kimsey, Jr. for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the P. R. Bass-Federal Well No. 1 located in Unit F of Section 3, Township 16 South, Range 30 East, West Henshaw Pool, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of produced salt water in an unlined surface pit located near said well.
- CASE 4136: Application of Mallard Petroleum, Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Yates formation in the interval from 3606 feet to 3627 feet in its Milner Federal Well No. 4 located in Unit C of Section 35, Township 20 South, Range 34 East, Lynch Pool, Lea County, New Mexico.
- CASE 4137: Application of Atlantic Richfield Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the East Shugart Unit Area comprising 1359.40 acres, more or less, of Federal and State lands in Townships 18 and 19 South, Range 31 East, Eddy County, New Mexico.

- CASE 4138: Application of Atlantic Richfield Company for a waterflood project and unorthodox injection well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Yates-Seven Rivers-Queen formations through 11 wells in Townships 18 and 19 South, Range 31 East, Shugart Pool, Eddy County, New Mexico. Applicant further seeks an exception to permit the drilling of one of said wells at an unorthodox location 100 feet from the South line and 990 feet from the West line of Section 35, Township 18 South, Range 31 East.
- CASE 4139: Application of Allied Chemical Corporation for a unit agreement, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Milnesand (San Andres) Unit Area comprising 5370.18 acres, more or less, of Federal and Fee lands in Township 8 South, Ranges 34 and 35 East, Roosevelt County, New Mexico.
- CASE 4140: Application of Allied Chemical Corporation for a waterflood project, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a water flood project in its Milnesand (San Andres) Unit Area by the injection of water into the San Andres formation through 33 wells located in Township 8 South, Ranges 34 and 35 East, Milnesand-San Andres Pool, Roosevelt County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.
- CASE 4141: Application of McCasland Disposal System for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Seven Rivers formation in the intervals from approximately 3756 feet to 3851 feet and from approximately 3918 feet to 3939 feet, respectively, in the Getty Oil Company J. H. Day Wells Nos. 1 and 2, both located in the NW/4 of Section 8, Township 22 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.
- CASE 4142: Application of Tamarack Petroleum Corporation, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water by injection into the Queen formation in the interval from 4946 feet to 5040 feet in its Cabot 15 State Well No. 2 located in Unit P of Section 15, Township 19 South, Range 35 East, Pearl-Queen Pool, Lea County, New Mexico.

Examiner Hearing - May 21, 1969

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Docket No. 15-69

CASE 4143: Application of Amerada Petroleum Corporation for downhole commingling and special gas-oil ratio limitation, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Eumont Gas Pool and the Skaggs-Grayburg Pool in the wellbore of its Fred Turner, Jr., "A" Well No. 2, the Eumont completion of which is presently classified as a gas completion, located in Unit K of Section 18, Township 20 South, Range 38 East, Lea County, New Mexico. Applicant, further seeks the establishment of a special gas-oil ratio limitation for the subject well.

(Continued from the May 7, 1969 Examiner Hearing)

CASE 4121: Application of Roger C. Hanks for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Bar U-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units and the assignment of 80-acre allowables.

Docket No. 13-69

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 7, 1969

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, Alternate Examiner:

CASE 4119: Application of Union Oil Company of California to directionally drill, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill its Owens Well No. 1 located 1980 feet from the North and East lines of Section 34, Township 14 South, Range 35 East, Lea County, New Mexico. Said well was drilled to a total depth of 11,199 feet and plugged back to approximately 9,000 feet. Applicant proposes to set a whipstock at approximately 9,000 feet and to directionally drill to a depth sufficient to bottom said well in the Lower Hueco formation at a point approximately 2298 feet from the North line and 1662 feet from the East line of said Section 34 (approximately 450 feet Southeast of the surface location.)

CASE 4120: Application of Sam Boren for the creation of a new gas pool, promulgation of special rules for the pool, a dual completion, and commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Wolfcamp gas pool for his Crowley State "A" Well No. 1 located in Unit L of Section 5, Township 12 South, Range 33 East, Lea County, New Mexico, and for the promulgation of special rules therefor, including a provision for 320-acre proration units. Applicant also seeks approval of the dual completion of said well to produce gas through the casing-tubing annulus from the aforesaid Wolfcamp pool and oil through tubing from the North Bagley-Lower Pennsylvanian Pool, commingling the liquid hydrocarbons from said pools on the lease. Applicant further seeks authority to commingle in the well-bore sufficient Wolfcamp gas to gas lift the Pennsylvanian oil.

CASE 4121: Application of Roger C. Hanks for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Bar U-Pennsylvanian Pool, Lea County, New Mexico, including a provision for 160-acre spacing and proration units and the assignment of 80-acre allowables.

CASE 4122: Application of Roger C. Hanks for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian

Docket No. 13-69
Examiner Hearing - May 7, 1969
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(Case 4122 continued)

formation in the interval from approximately 12,878 feet to 13,011 feet in his Atlantic Tebworth Well No. 1 located in the SW/4 SW/4 of Section 25, Township 8 South, Range 36 East, Allison Field, Roosevelt County, New Mexico.

CASE 4123: Application of Kersey and Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier and Lovington sands of the Grayburg formation through its Dublin Well No. 3 located in the NW/4 NE/4 of Section 3, Township 17 South, Range 29 East, Square Lake Pool, Eddy County, New Mexico.

CASE 3405: (Reopened) - TO BE CONTINUED TO MAY 21, 1969

In the matter of Case No. 3405 being reopened pursuant to the provisions of Order No. R-3081, which order established 640-acre spacing for the North Indian Hills-Morrow Gas Pool, Eddy County, New Mexico, for a period of one year after first pipeline connection in the pool. All interested parties may appear and show cause why said pool should or should not be developed on 320-acre spacing units.

CASE 4124: Application of Amerada Petroleum Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the State H "A" COM Unit Area comprising 1,281 acres, more or less, of State lands in Sections 18, 19, and 30 of Township 14 South, Range 35 East, Lea County, New Mexico.

CASE 4125: Application of Continental Oil Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the San Andres formation through ten wells in Sections 34 and 35, Township 16 South, Range 29 East, Forest-San Andres Pool, Eddy County, New Mexico.

CASE 4126: Application of Curtis Hankamer for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the applicant's wells located in Sections 12, 13, 14, and 24, Township 26 South, Range 29 East, Brushy-Draw Delaware Pool, Eddy County, New Mexico. Applicant seeks

Docket No. 13-69

Examiner Hearing - May 7, 1969

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(Case 4126 continued)

authority to continue to dispose of salt water produced by said wells in four unlined surface pits.

CASE 4127: Application of Curtis Hankamer for an exception to Order No. R-3221, as amended, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for applicant's two wells located in Section 11, Township 24 South, Range 32 East, Double X-Delaware Pool, Lea County, New Mexico. Applicant seeks authority to continue to dispose of salt water produced by said wells in two unlined surface pits.

CASE 4128: Application of C. O. Fulton for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier and Lovington sands of the Grayburg formation through one well located in Unit D of Section 2, and two wells in Units D and P of Section 3, Township 17 South, Range 29 East, Square Lake Pool, Eddy County, New Mexico.

CASE 4117: (Continued from the April 23, 1969 Examiner Hearing)
Application of Eastern Petroleum Company for special pool rules, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the Rattlesnake-Dakota Pool, San Juan County, New Mexico, permitting the drilling of wells on 2½-acre spacing provided that no well be located nearer than 50 feet to the outer boundary of the quarter-section and no nearer than 165 feet to another well producing from the same pool, and provided further, that a 40-acre proration unit would be subject to a 40-acre allowable regardless of the number of wells on the unit.

CASE 4118: (Continued from the April 23, 1969 Examiner Hearing)

Application of Dugan Production Corporation for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle gas production from undesignated Fruitland and Pictured Cliffs gas pools in the well-bore of its Federal "I" Well No. 4, located in the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West, San Juan County, New Mexico.

Docket No. 13-69

Examiner Hearing - May 7, 1969

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CASE 4129: Application of Redfern Development Corporation for gas commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle Devils Fork-Gallup gas and Basin-Dakota gas after separately metering the Dakota gas and determining the Gallup production by means of the subtraction method. Said production is from the dually completed Largo Spur Well No. 1 located in Unit J of Section 18, Township 24 North, Range 6 West, Rio Arriba County, New Mexico.

Docket No. 12-69

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 23, 1969

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

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

- CASE 4079: (Continued from the March 26, 1969, Examiner Hearing)
Application of Robert B. Holt for the creation of a new pool, assignment of a discovery allowable, and the promulgation of special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Middle Pennsylvanian oil pool for his Aztec State Well No. 2 located in Unit A of Section 26, Township 13 South, Range 32 East, Lea County, New Mexico, and for the assignment of an oil discovery allowable in the amount of approximately 48,715 barrels to said well. Applicant further seeks the promulgation of special pool rules for said pool, including a provision for 160-acre proration units and the assignment of 80-acre allowables.
- CASE 4106: Application of Southland Royalty Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Permo-Pennsylvanian formation in the perforated interval from approximately 9485 feet to 9713 feet in its Guye Well No. 4 located in Unit F of Section 12, Township 11 South, Range 33 East, Inbe Permo-Pennsylvanian Pool, Lea County, New Mexico.
- CASE 4107: Application of Coastal States Gas Producing Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the West Sawyer-San Andres Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.
- CASE 4108: Application of Humble Oil & Refining Company for the rededication of acreage, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to recomplete its New Mexico "V" State Well No. 5, a non-commercial Wantz-Abo oil producer, to a Tubb gas producer and to consolidate the 40 acres presently dedicated to said well with the 120 acres presently dedicated to its New Mexico "V" State Well No. 11, a Tubb gas producer, to form a standard 160-acre proration unit comprising the SW/4 of Section 10, Township 21 South, Range 37 East, Tubb Gas Pool, Lea County, New Mexico. Applicant further seeks authority to produce the allowable assigned to said unit from either of said wells in any proportion.
- CASE 4109: Application of Humble Oil & Refining Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Lea Unit Area comprising 8,324.16 acres, more or less, of State, Federal, and Fee lands in Township 26 South, Range 36 East, Lea County, New Mexico.

CASE 4110: Application of Atlantic-Richfield Company for a waterflood project and unorthodox injection well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the Queen formation through one well to be drilled at an unorthodox location 100 feet from the North and West lines of Section 23, Township 18 South, Range 31 East, Shugart Pool, Eddy County, New Mexico.

CASE 4111: Application of Tenneco Oil Company for a dual completion and salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Morton Federal Well No. 1, located in Unit A of Section 12, Township 9 South, Range 35 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Vada-Pennsylvanian Pool and the disposal of produced salt water through the intermediate casing-production casing annulus into the San Andres, Abo and possibly other formations in the open-hole interval from approximately 4050 feet to 3120 feet.

CASE 4112: Application of P-M Drilling Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Delaware formation in the perforated interval from approximately 5062 feet to 5100 feet in its James Federal Well No. 1 located in Unit A of Section 35, Township 23 South, Range 32 East, Triste Draw-Delaware Pool, Lea County, New Mexico.

CASE 4113: Application of Texas Pacific Oil Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks to substitute its State "D" A/c-1 Well No. 1 located in Unit A of Section 2, Township 12 South, Range 33 East, in lieu of its State "C" A/c-1 Well No. 1 located in Unit B of said Section 2 as the producing well for the proration unit comprising the N/2 NE/4 of said Section 2, Bagley-Siluro-Devonian Pool, Lea County, New Mexico.

CASE 4114: Application of Gulf Oil Corporation for two unorthodox oil well locations and amendment to Order No. R-2729, Lea County, New Mexico. Applicant in the above-styled cause, seeks authority to drill two producing oil wells at unorthodox locations in Township 19 South, Range 35 East, as infill wells in the West Pearl Queen Unit Waterflood Project, Pearl Queen Pool, Lea County, New Mexico, said wells to be located as follows:

West Pearl Queen Unit Well No. 164 to be located 1325 feet from the North line and 2635 feet from the West line of Section 32;

West Pearl Queen Unit Waterflood Well No. 165 to be located 1420 feet from the South line and 1325 feet from the West line of Section 29;

(Case 4114 continued)

Applicant also seeks the amendment of Order No. R-2729, which order authorized the aforesaid waterflood project, to establish a procedure whereby additional injection wells and producing wells at unorthodox infill locations, as may be necessary to complete an efficient injection and producing pattern, may be approved administratively.

CASE 4115: Application of Southern Union Production Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Dakota formation underlying the W/2 of Section 16, Township 29 North, Range 9 West, Basin-Dakota Pool, San Juan County, New Mexico. Said acreage to be dedicated to a well to be drilled at a standard location in the W/2 of said Section 16. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4116: Application of Tesoro Petroleum Corporation for the amendment of Order No. R-2797 and for the extension of the South Hospah-Upper Sand Pool, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2797, which order approved the Hospah Unit Agreement, to delete from said unit agreement 233.87 acres in the Southeast portion of Section 1, Township 17 North, Range 9 West, McKinley County, New Mexico. Applicant also seeks the extension of the South Hospah-Upper Sand Pool to include a portion of the Southeast quarter of said Section 1.

CASE 4117: Application of Eastern Petroleum Company for special pool rules, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the Rattlesnake-Dakota Pool, San Juan County, New Mexico, permitting the drilling of wells on 2½-acre spacing provided that no well be located nearer than 50 feet to the outer boundary of the quarter-quarter section and no nearer than 165 feet to another well producing from the same pool, and provided further, that a 40-acre proration unit would be subject to a 40-acre allowable regardless of the number of wells on the unit.

CASE 4118: Application of Dugan Production Corporation for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle gas production from undesignated Fruitland and Pictured Cliffs gas pools in the well-bore of its Federal "I" Well No. 4, located in the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West, San Juan County, New Mexico.

CASE 4096: (Continued from the April 5, 1969, Examiner Hearing)

Application of Kersey & Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority

-4- Examiner Hearing - April 23, 1969

Docket No. 12-69

to institute a waterflood project by the injection of water into the Seven Rivers formation through four wells located in Units C, D, and F of Section 25, Township 17 South, Range 28 East, Aid (Yates-Seven Rivers) Pool, Eddy County, New Mexico.

CASE 4078: (Continued from the April 9, 1969, Examiner Hearing)

Application of J. Gregory Merrion for downhole commingling, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Devils Fork-Gallup Pool and an undesignated Mesaverde oil pool in the wellbore of his NCRA State Well No. 3 located in Unit L of Section 16, Township 24 North, Range 6 West, Rio Arriba County, New Mexico.

R 14 W

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 4118

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ORIGINAL PICTURED CLIFFS SHUT-IN PRESSURES

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Aztec
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Post Office Box 294
Zip Code 87401

DUGAN PRODUCTION CORP.

THOMAS A. DUGAN, President

709 BLOOMFIELD RD.
FARMINGTON, NEW MEXICO

March 18, 1969

TELEPHONE: 325-9184 Office
325-5694 Home

Area Code 505

69 MAR 19 PM 03

Case 4118

Mr. A. L. Porter
Oil Conservation Commission
Box 2088
Santa Fe, New Mexico 87501

Re: Dugan Production Corp.
Federal I #4
Sec. 1, T 29 N, R 14 W
San Juan County, New Mexico

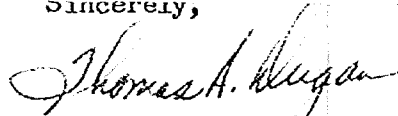
Dear Mr. Porter:

We have completed the captioned well, which is located in the NE/4 NW/4 Section 1, in the Fruitland and Pictured Cliffs formations. Together, both zones produce 2600 MCF, with a shut in pressure of 267 psig. We have set a bridge plug between the zones and the Fruitland formation produces 395 MCF, with a shut in pressure of 257 psig.

We are requesting permission to commingle the gas produced from the Fruitland and Pictured Cliffs formations in the well-bore.

The well is in an undesignated area for both zones.

Sincerely,


Thomas A. Dugan

dw

cc: Emery Arnold, Oil Conservation Comm.
Phil McGrath, USGS

DOCKET 4-10-69

4-10-69

GMH/ir
5/12/69

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 4118

Order No. R- 3752

APPLICATION OF DUGAN PRODUCTION
CORPORATION FOR DOWNHOLE COMMINGLING,
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 7, 1969,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this _____ day of May, 1969, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, 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, Dugan Production Corporation, is
the owner and operator of the Federal "I" Well No. 4, located in
the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West, San
Juan County, New Mexico.
- (3) That the subject well is capable of producing only a
~~limited~~ ^{very small} amount of gas from either or both of the undesignated
Fruitland and Pictured Cliffs gas pools in which it is completed.
- (4) That the applicant proposes to produce both of the
subject zones through a single string of 2 7/8-inch casing, com-
mingling the production in said casing.
- (5) That there is very little pressure differential between
the low ~~bottom-hole~~ ^{pressure} pressures existing in both of the subject
zones.
- (6) That it would be uneconomical to dually complete the
subject well.

(7) That the reservoir characteristics of each of the subject zones are such that underground waste would not be caused by the proposed commingling in the well-bore.

(8) That the proposed commingling may result in the recovery of additional gas from each of the subject pools, thereby preventing waste, and will not violate correlative rights.

(9) That production tests should be conducted, prior to commingling, to determine the production from each zone.

IT IS THEREFORE ORDERED:

(1) That the applicant, Dugan Production Corporation, is hereby authorized to complete its Federal "I" Well No. 4, located in the NE/4 NW/4 of Section 1, Township 29 North, Range 14 West, NMPM, San Juan County, New Mexico, in such a manner as to produce gas from an undesignated Fruitland gas pool through perforations from 860 feet to 865 feet and to produce gas from an undesignated Pictured Cliffs formation through perforations from 1203 feet to 1208 feet, commingling the production from each of said zones in the well-bore until further order of the Commission;

PROVIDED HOWEVER, that the production of each zone shall be established and future production allocated to the Fruitland and Pictured Cliffs zones of the subject well in accordance with the following procedure:

1. Prior to commingling, a 3-hour initial potential test of the Fruitland zone shall be conducted. (Test #1.)

2. Subsequent to commingling, a 3-hour initial potential test of the commingled Fruitland and Pictured Cliffs zones shall be conducted. (Test #2).

3. Determine the Pictured Cliffs allocation of production factor as follows:

$$(PC_f) = \frac{\text{Test \#2} - \text{Test \#1}}{\text{Test \#2}}$$

4. Determine the monthly allocation of production as follows:

a. Pictured Cliffs gas production = $PC_f \times$ commingled gas production.

b. Fruitland gas production = commingled gas production less calculated Pictured Cliffs gas production.

(2) 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

CARGO
ARMIJO
PORTER

S E A L