



**Amoco Production Company**

Houston Region  
501 WestLake Park Boulevard  
Post Office Box 3092  
Houston, Texas 77253

R. E. Ogden  
Regional Engineering  
Manager

August 15, 1984

File: JDM-507-964

Re: NMOCD Case No. 8190, Order No. R-7556  
Temporary Special Spacing Rules  
Bravo Dome Carbon Dioxide Gas Unit  
Union, Harding, and Quay Counties, New Mexico

RECEIVED

AUG 17 1984

OIL CONSERVATION DIVISION

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
State Land Office Building  
Old Santa Fe Trail  
P. O. Box 2088  
Santa Fe, NM 87501

Attention: Mr. Joe D. Ramey

Gentlemen:

Pursuant to the above-referenced order, we hereby submit a plan which will allow us to demonstrate the drainage efficiency of wells located on 640-acre spacing units. We plan to monitor the bottom-hole pressure in four wells which will be shut in for an extended period of time, while offsetting wells produce. Other data to be collected includes bottom-hole pressure data from currently shut-in wells offsetting Phase I and production data from long-term flow test and from Phase I and Phase II producing wells.

The four wells to be shut in for bottom-hole pressure monitoring are shown on Attachment No. 1. Two of these wells, BDCDGU Well Nos. 2033 161G and 1833 351G, will be located approximately one mile from offset producing wells. A reduction in reservoir pressure due to a producing well 5280 feet away indicates that the producing well has a drainage area of at least 2000 acres. The other two wells to be shut in, BDCDGU Well Nos. 2034 201G and 1835 161M, will be located approximately 3000 feet from offset producing wells. A decline in reservoir pressure at either of these two wells implies that an offset well can drain an area of at least 640 acres.

State of New Mexico  
August 15, 1984  
Page 2

Presently we are monitoring the bottom-hole pressure of shut-in Phase II wells which offset wells currently producing in Phase I (Attachment No. 2). Their bottom-hole pressures were measured prior to the initiation of Phase I production operations and will continue to be measured every three months until Phase II begins production in January 1985. A reduction in bottom-hole pressure in the shut-in wells will indicate that a producing well can affect the reservoir a mile away. However, there will probably be insufficient time to see a significant decrease in reservoir pressure by January 1985.

We are currently evaluating the need to run two or more additional long-term flow tests in the northern and western parts of the unit. Potential candidates include BDCDGU Well Nos. 1930 361G, 2233 321K, and 2233 121G (Attachment No. 3). As shown at the hearing for Amoco's application for temporary special spacing rules on May 15, 1984, production data from the four past long-term flow tests exhibited level production rates with only small declines in flowing tubing pressure. A radial gas flow model was used to show that the production rate/flowing tubing pressure behavior of BDCDGU Well Nos. 1934 201G and 1935 221G was reflective of wells draining at least a 640-acre area. The additional long-term flow tests should demonstrate whether or not wells in the northern and western parts of the unit are also capable of draining 640 acres.

Last, the initiation of production operations in Phase I during April 1984 and the scheduled start-up of Phase II during January 1985 generates the opportunity to acquire much needed production data such as rate, pressure, and cumulative production. This data will be useful in future model studies and material balance calculations.

We believe this plan for data acquisition will result in a satisfactory demonstration of the drainage efficiency of wells on 640-acre spacing units. You will be advised if any change to this plan becomes necessary. In accordance with the above-referenced order, your approval of this plan is respectfully requested. Please contact Mr. Jim Allen (713) 556-3931 if additional information is needed.

Yours very truly,

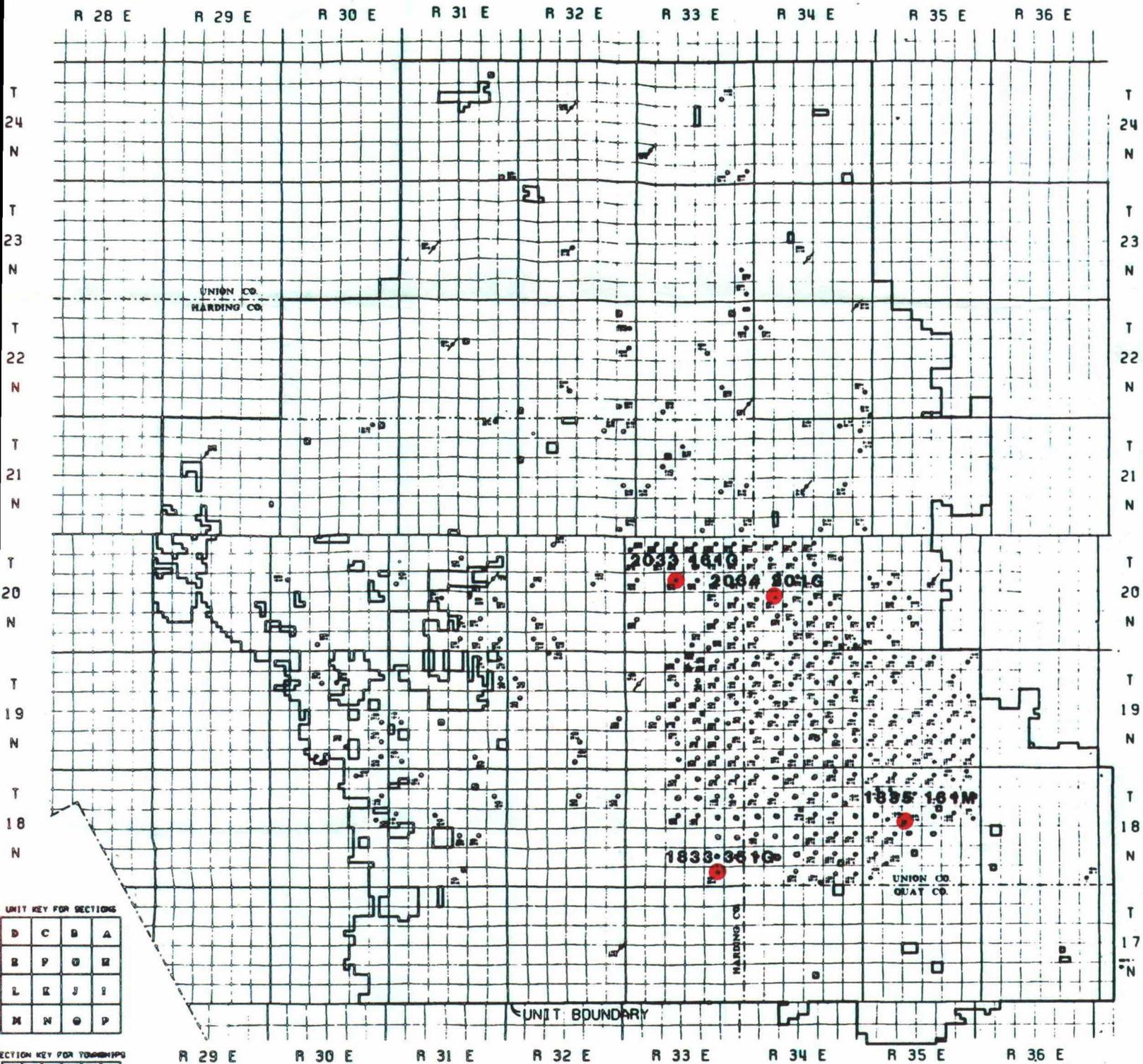


PEY/pap  
OP4D002

Attachments

State of New Mexico  
August 15, 1984  
Page 3

cc: J. R. Barnett - 21.156  
R. L. Evans - 19.156  
J. C. Allen - 4.548  
D. R. Currens - 4.540  
C. A. Mote - 3.468  
L. R. Smith - Hobbs, NM



UNIT KEY FOR SECTIONS

D	C	B	A
E	F	G	H
I	J	K	L
M	N	O	P

SECTION KEY FOR TOWNSHIPS

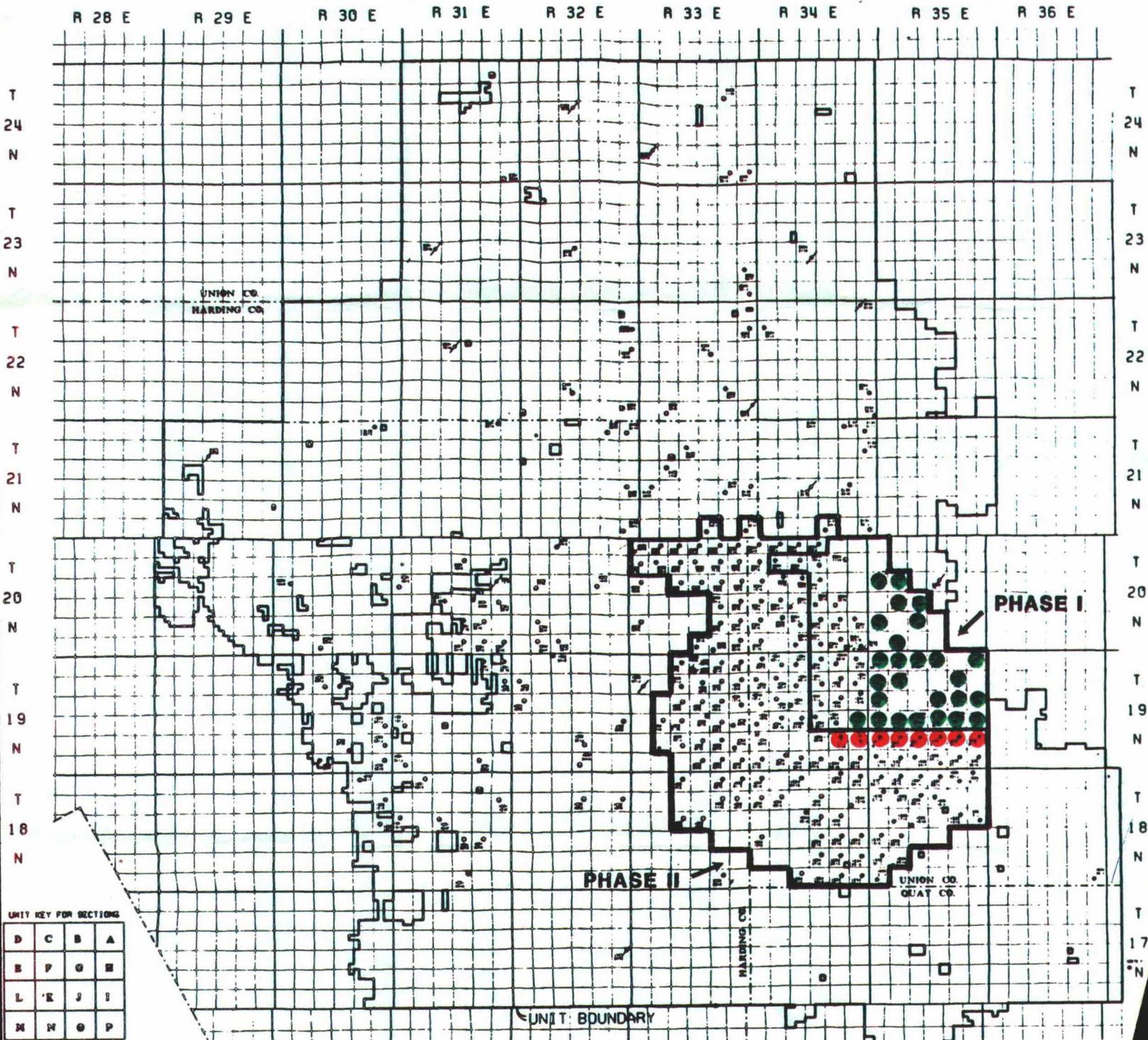
6	5	4	3	2	1
7	8	9	0	1	2
8	7	6	5	4	3
9	0	1	2	3	4
0	9	8	7	6	5
1	0	9	8	7	6



LEGEND  
 ○ CO<sub>2</sub> PRODUCER  
 ● BHP  
 — UNIT BOUNDARY

# BRAVO DOME CARBON DIOXIDE GAS UNIT UNION, HARDING, AND QUAY COS., NEW MEXICO

● Proposed Extended Shut-in for BHP Monitoring



UNIT KEY FOR SECTIONS

D	C	B	A
E	F	G	H
L	K	J	I
M	N	O	P

SECTION KEY FOR TOWNSHIPS

6	5	4	3	2	1
7	8	9	0	1	2
8	7	6	5	4	3
9	0	1	2	3	4
0	1	2	3	4	5
1	2	3	4	5	6

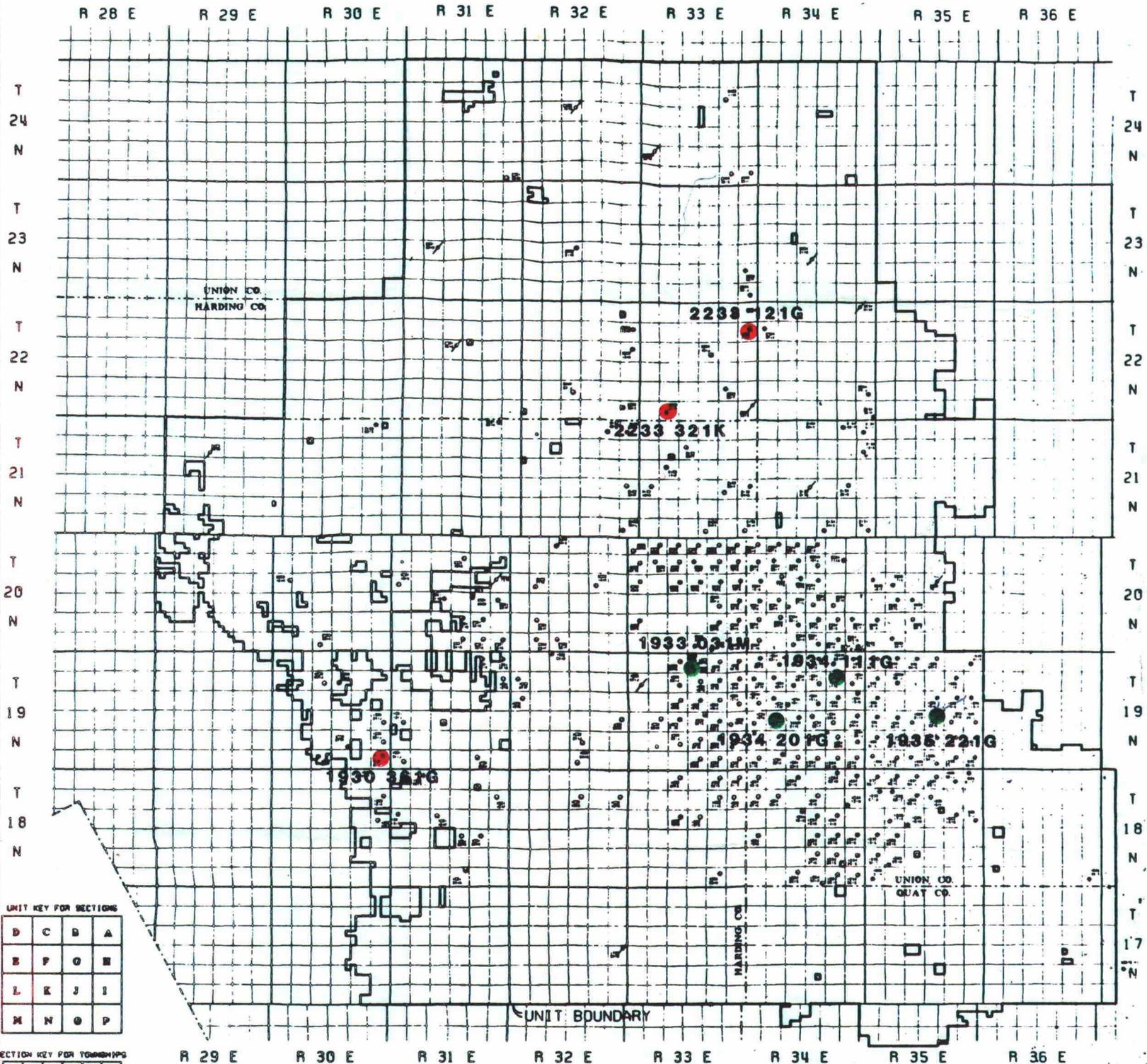


LEGEND  
 ● CO<sub>2</sub> PRODUCER  
 ● SHUT-IN PRODUCER

500  
14  
2  
300

# BRAVO DOME CARBON DIOXIDE GAS UNIT UNION, HARDING, AND QUAY COS., NEW MEXICO

- Phase I Active Producer
- Phase II Shut-in Producer



UNIT KEY FOR SECTIONS

D	C	B	A
E	F	O	H
L	K	J	I
M	N	P	

SECTION KEY FOR TOWNSHIPS

6	5	4	3	2	1
7	8	9	0	1	2
8	7	6	5	4	3
9	0	1	2	3	4
0	2	9	8	7	6
5	2	9	8	7	6
5	2	9	8	7	6

LEGEND  
 ○ CO<sub>2</sub> PRODUCER  
 ● PROPOSED  
 ○ DND



# BRAVO DOME CARBON DIOXIDE GAS UNIT UNION, HARDING, AND QUAY COS., NEW MEXICO

- 1982-83 Long Term Flow Test Producing Wells
- Proposed 1985-86 Long Term Flow Test Producing Wells

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION COMMISSION

RECEIVED

JUN 29 1984

OIL CONSERVATION DIVISION

APPLICATION OF AMOCO PRODUCTION  
COMPANY FOR TEMPORARY SPECIAL  
SPACING RULES, UNION, HARDING,  
AND QUAY COUNTIES, NEW MEXICO.

CASE NO. 8190  
ORDER NO. R-7556

MOTION FOR REHEARING

Energy-AGRI Products, Inc., by its undersigned attorney, moves the Commission for rehearing of the above styled case and order, insofar as it grants authority for temporary 640 acre spacing, on the basis that the applicant, having the burden of proof, failed, on the basis of substantial evidence, to establish the necessity for temporary 640 acre spacing within the outer boundaries of the Bravo Dome Unit Area.

Further, rehearing is necessitated on the basis that the notice of hearing was insufficient and Order R-7556 should exclude uncommitted and unleased lands within the outer boundaries of the Bravo Dome Unit Area.

Respectfully submitted,



Ernest L. Padilla

AMERICAS WELLS

MITCHELL #1

Location: 330' FNL & 330' FWL, Sec. 9, T18N, R30E

MITCHELL #2

Location: 860' FSL & 760' FWL, Sec. 20, T19N, R30E

MITCHELL #3

Location: 400' FSL & 400' FEL, Sec. 18, T19N, R30E

MITCHELL #4

Location: 660' FNL & 660' FEL, Sec. 13, T19N, R30E

MITCHELL #5

Location: 990' FNL & 990' FEL, Sec. 24, T19N, R29E

MITCHELL #6

Location: 660' FSL & 660' FWL, Sec. 8, T19N, R30E

MITCHELL #7

Location: 660' FSL & 660' FWL, Sec. 29, T19N, R30E

MITCHELL #8

Location: 1980' FNL & 660' FEL, Sec. 8, T19N, R30E

MITCHELL #9

Location: 1085' FNL & 341' FWL, Sec. 29, T19N, R30E

MITCHELL #10

Location: 2310' FNL & 1070' FEL, Sec. 19, T19N, R30E

AmeriGas Wells Continued

MITCHELL #11

Location: 660' FSL & 1980' FWL, Sec. 17, T19N, R30E

MITCHELL #12

Location: 1980' FSL & 1980' FWL, Sec. 20, T19N, R30E

MITCHELL #13

Location: 660' FSL & 1986' FEL, Sec. 29, T19N, R30E

MITCHELL #14

Location: 663.8' FSL & 1958.3' FEL, Sec. 17, T18N, R30E

MITCHELL #15

Location: 3305' FWL & 1980' FNL, Sc. 28, T18N, R30E

MITCHELL #16

Location: 1980' FSL & 1980' FEL, Sec. 5, T18N, R30E

MITCHELL #17

Location: 690' FWL & 2023' FSL, Sec. 5, T18N, R30E

MITCHELL #18

Location: 660' FNL & 1980' FWL, Sec. 8, T18N, R30E

MITCHELL #19

Location: 1980' FNL & 660' FWL, Sec. 4, T18N, R30E

MITCHELL #20

Location: 1650' FWL & 1980' FSL, Sec. 5, T18N, R30E

NW $\frac{1}{4}$  Sec. 7; E $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$  Sec. 2; E $\frac{1}{2}$ E $\frac{1}{2}$  Sec. 3; E $\frac{1}{2}$ E $\frac{1}{2}$  Sec. 4; All of Sec 5 EXCEPT Lot 1, SE $\frac{1}{4}$ NE $\frac{1}{4}$  and E $\frac{1}{2}$ SE $\frac{1}{4}$ ; N $\frac{1}{2}$ N $\frac{1}{2}$ S $\frac{1}{2}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$  Sec. 6; ALL of Sec. 8; S $\frac{1}{2}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$  Sec. 9; S $\frac{1}{2}$ , NE $\frac{1}{4}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$  Sec. 10; SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$  Sec. 11; W $\frac{1}{2}$ W $\frac{1}{2}$  Sec. 12; S $\frac{1}{2}$ , NW $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$  Sec. 14; S $\frac{1}{2}$ , S $\frac{1}{2}$ N $\frac{1}{2}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$  Sec. 15; ALL Sec. 16; All in Township 19 North, Range 31 East, S $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$  Sec. 11; SW $\frac{1}{4}$ NE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$  Sec. 12; W $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ S $\frac{1}{2}$  Sec. 14; N $\frac{1}{2}$ , N $\frac{1}{2}$ S $\frac{1}{2}$  Sec. 15; ALL Sec. 16; SW $\frac{1}{4}$  Sec. 21; S $\frac{1}{2}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$  Sec. 27; N $\frac{1}{2}$ , SE $\frac{1}{4}$  Sec. 28; N $\frac{1}{2}$ , SW $\frac{1}{4}$ ; W $\frac{1}{2}$ SE $\frac{1}{4}$  Sec. 29; E $\frac{1}{2}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , Sec. 30; E $\frac{1}{2}$  (EXCEPT NW $\frac{1}{4}$ NE $\frac{1}{4}$ ), N $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , Sec. 31; W $\frac{1}{2}$ , SE $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$  Sec. 32; all in Township 20 North, Range 31 East.

SCHWARTZ CARBONIC WELLS

LIBBY DEBACA 2Y

Location: 1047' FNL & 1971' FEL, Sec. 31, T20N, R31E

LIBBY #1

Location: 1980' FNL & 1980' FEL, Sec. 31, T20N, R31E

LIBBY #2

Location: 1980' FNL & 660' FWL, Sec. 32, T20N, R31E

LIBBY #3

Location: 660' FEL & 1980' FNL, Sec. 15, T20N, R31E

LIBBY #4

Location: 660' FEL & 1980' FSL, Sec. 16, T20N, R31E

SCHWARTZ 1-X

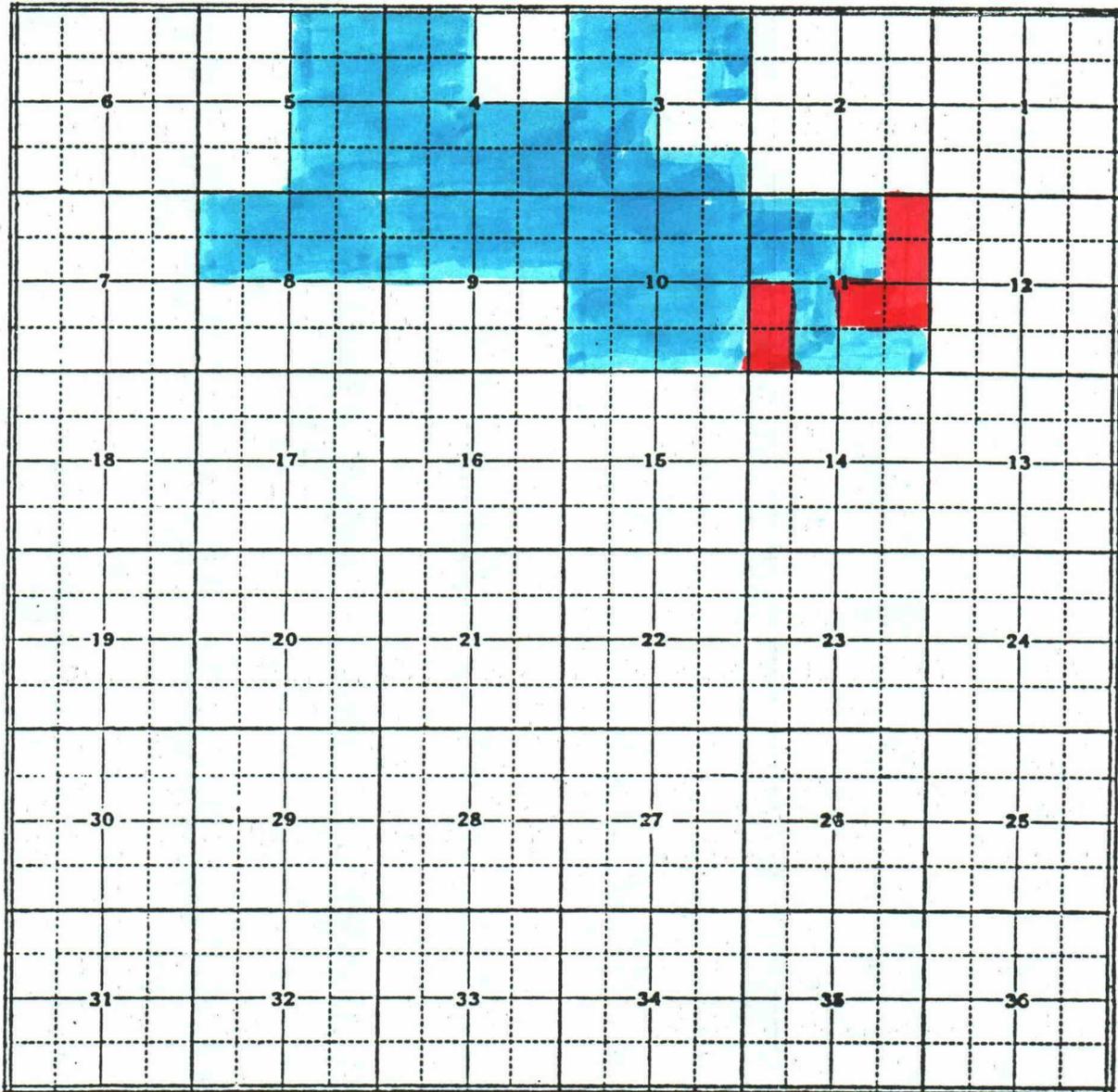
Location: 1637' FNL & 1650 FEL, Sec. 30, T20N, R31E



ENERGY-AGRI PRODUCTS, INC.

TOWNSHIP 18 NORTH

RANGE 34 EAST



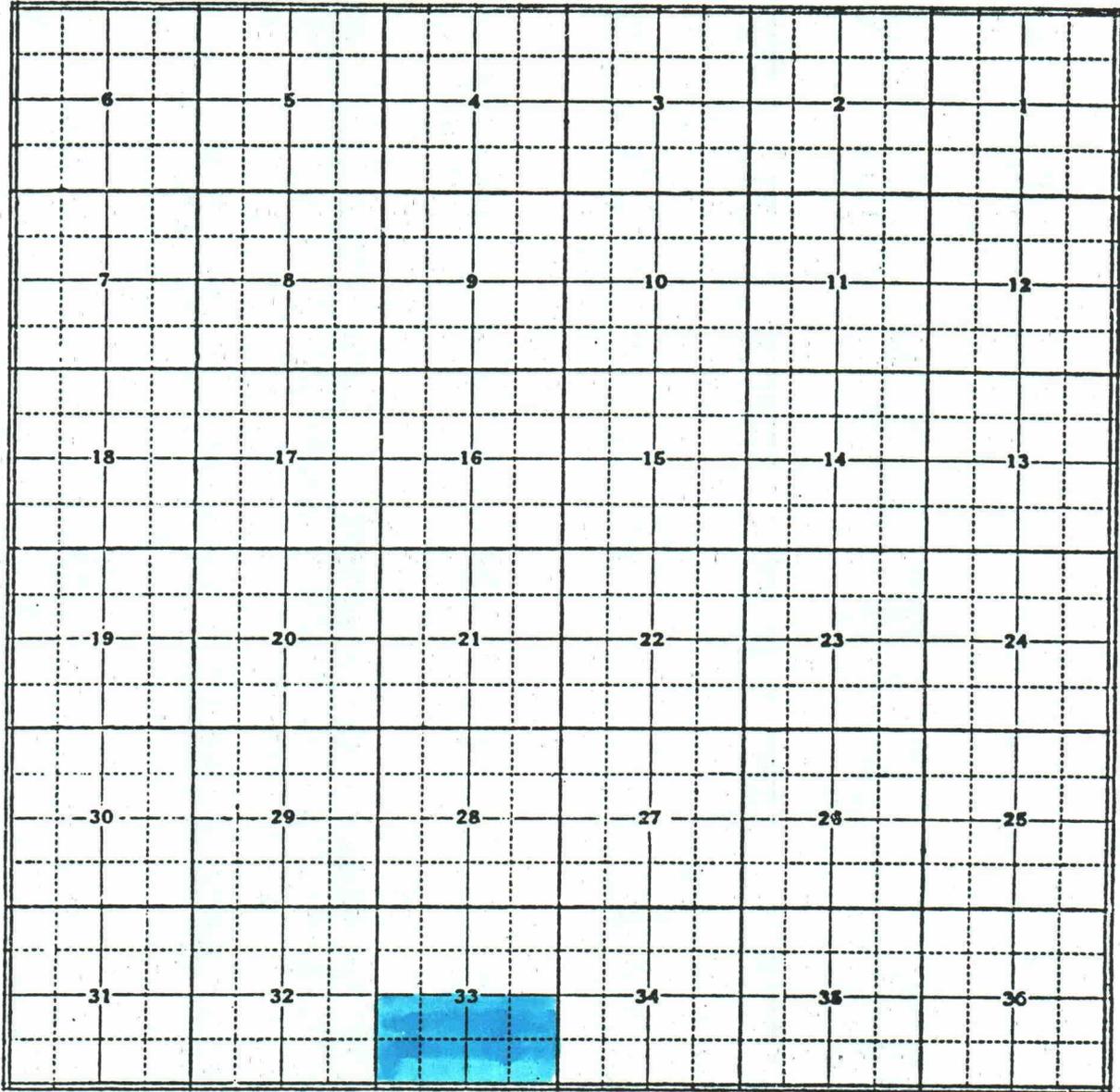
 Unleased Minerals

 Royalty Interest

ENERGY-AGRI PRODUCTS, INC.

TOWNSHIP 19 NORTH

RANGE 34 EAST



 Unleased Minerals

 Royalty Interest

CAMPBELL, BYRD & BLACK, P.A.

LAWYERS

JACK M. CAMPBELL  
HARL D. BYRD  
BRUCE D. BLACK  
MICHAEL B. CAMPBELL  
WILLIAM F. CARR  
BRADFORD C. BERGE  
KEMP W. GORTHEY  
J. SCOTT HALL  
PETER N. IVES

JEFFERSON PLACE  
SUITE 1 - 110 NORTH GUADALUPE  
POST OFFICE BOX 2208  
SANTA FE, NEW MEXICO 87501  
TELEPHONE: (505) 988-4421  
TELECOPIER: (505) 983-6043

May 22, 1984

RECEIVED

MAY 22 1984

OIL CONSERVATION DIVISION

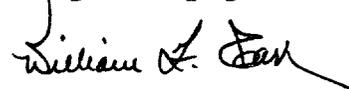
Mr. Joe D. Ramey, Director  
Oil Conservation Division  
New Mexico Department of  
Energy and Minerals  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Re: Case 8190: Application of Amoco Production Company for  
Temporary Special Spacing Rules, Union, Harding and Quay  
Counties, New Mexico.

Dear Mr. Ramey:

Pursuant to your request of May 16, 1984, I am enclosing  
herewith a proposed Order granting the application of Amoco  
Production Company in the above-referenced case.

Very truly yours,



William F. Carr

WFC/cv  
enclosure

cc: (w/enclosure)  
Arthur L. Jaramillo, Esq.  
W. Thomas Kellahin, Esq.  
Owen M. Lopez, Esq.  
Ernest L. Padilla, Esq.

MEMORANDUM

TO: Oil Conservation Commission  
Attention: Joe D. Ramey

FROM: Owen M. Lopez  
Representing AmeriGas

Arturo L. Jaramillo  
Representing Ross Carbonics

DATE: May 29, 1984

RE: Proposed Order in Case No. 8190

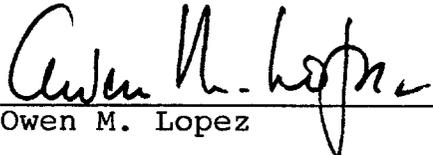
RECEIVED  
MAY 29 1984  
OIL CONSERVATION DIVISION

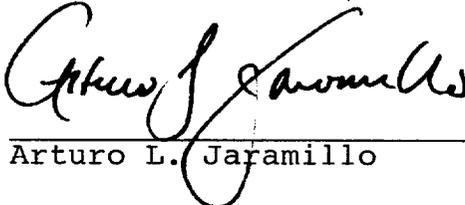
Dear Joe,

In accordance with your request, we submit herewith two proposed Orders in the above-referenced case. The Order we prefer is the one which completely denies Amoco's application and, as argued at the hearing, we believe this the most appropriate Order inasmuch as Amoco's additional evidence did nothing more to prove the ability of one well to efficiently and economically drain an entire 640-acre unit.

However, in the alternative, we submit a second Order which divides the unit area and establishes 640-acre spacing for the Eastern portion and 160-acre spacing for the Western portion. This Order would permit AmeriGas and Ross Carbonics to develop their leases on 160-acre spacing and at the same time allow Amoco the bulk of its request.

Respectfully submitted,

  
Owen M. Lopez

  
Arturo L. Jaramillo

OML/mg  
cc: William F. Carr  
W. Thomas Kellahin

**ERNEST L. PADILLA**  
ATTORNEY AND COUNSELOR AT LAW

First Northern Plaza  
P.O. Box 2523  
Santa Fe, New Mexico 87501  
(505) 988-7577

May 29, 1984

HAND DELIVERED

Joe D. Ramey, Director  
Oil Conservation Division  
P.O. Box 2088  
Santa Fe, New Mexico 87501

RECEIVED

MAY 29 1984

OIL CONSERVATION DIVISION

RE: Case No. 8190

Dear Mr. Ramey:

In accordance with your request at the May 15, 1984 hearing for the above referenced case, enclosed is a proposed form of Order denying Amoco's application for special rules in the Bravo Dome area.

We urge your approval of this Order inasmuch as we strongly believe that Amoco, having the burden of proof, failed to demonstrate substantial evidence for its request.

Enclosed also is a plat showing my client's interests in the subject area. As you can see my client's interests consist mainly of royalty interests.

Finally, the proposed form of Order is one identical to one submitted by Ross Carbonics and Amerigas.

Very truly yours,



Ernest L. Padilla

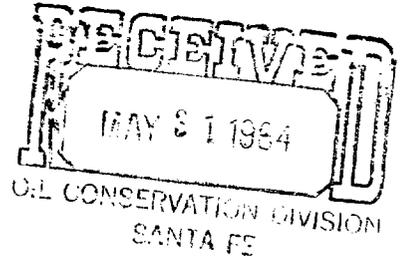
ELP/bv

Enc

cc: Energy-AGRI Products, Inc.  
William F. Carr, Esq.  
Owen Lopez, Esq.  
Arthur Jaramillo, Esq.  
W. Thomas Kellahin, Esq.

JONES, GALLEGOS, SNEAD & WERTHEIM

May 29, 1984



Mr. Joe Ramey  
Oil Conservation Division  
New Mexico State Land Office  
Santa Fe, New Mexico 87501

RE: Application of Amoco Production Co.  
for Temporary Special Spacing Rules  
Harding & Quay Counties  
Case No. 8190

Dear Mr. Ramey:

In accordance with your instructions at the May 15, 1984 hearing in the above referenced matter, I enclose herewith a leasehold map demonstrating the leasehold interests of Ross Carbonics, being uncommitted tracts within the Bravo Dome Unit. The well locations in the Hayoz lease are indicated on the map.

By separate cover we have jointly submitted two forms of proposed Orders with counsel for AmeriGas. Thank you very much for your attention to these matters.

Very truly yours,

JONES, GALLEGOS, SNEAD  
& WERTHEIM, P.A.

By

ARTURO L. JARAMILLO

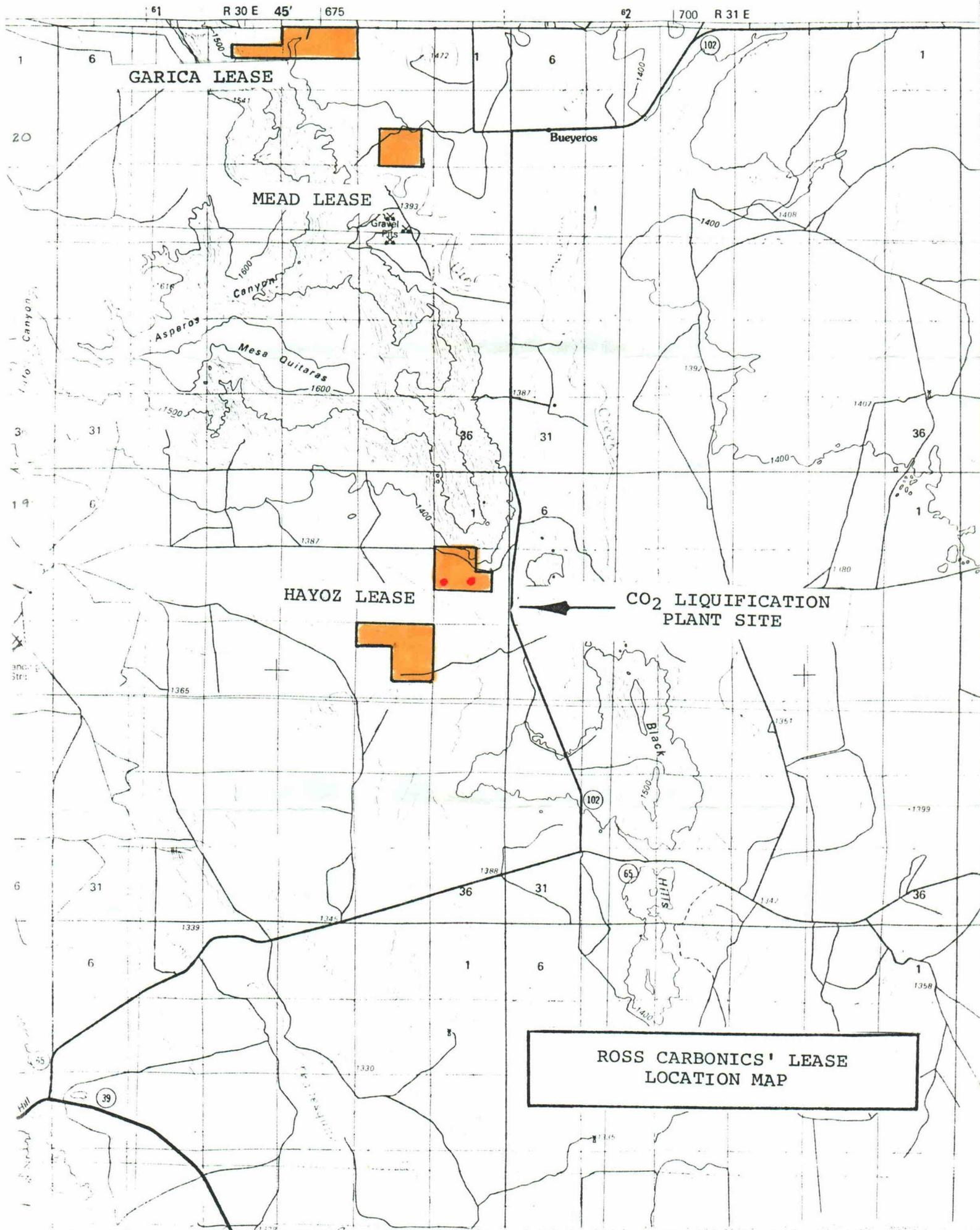
ALJ:hvm

Enclosure

cc: Mr. Morris Young

O RUSSELL JONES (1912-1978)

J.E. GALLEGOS	JUDITH C. HERRERA
JAMES E. SNEAD	KATHLEEN A. HEMPELMAN
JERRY WERTHEIM	CHARLES A. PURDY
M.J. RODRIGUEZ	MARTHA VAZQUEZ
JOHN WENTWORTH	LELAND ARES
STEVEN L. TUCKER	ASENATH M. KEPLER
ARTURO L. JARAMILLO	MICHAEL BAIRD
PETER V. CULBERT	J. SCOTT HANCOCK
JAMES G. WHITLEY III	NANCY R. LONG
FRANCIS J. MATHEW	
ROBERT W. ALLEN	ATTORNEYS AT LAW



ROSS CARBONICS' LEASE  
LOCATION MAP

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO  
18 March 1981

COMMISSION HEARING

-----

IN THE MATTER OF:

Application of Amoco Production Com- )  
pany for temporary special pool )  
rules, Union, Harding, and Quay )  
Counties, New Mexico. )

CASE  
7198

-----  
BEFORE: Commissioner Ramey  
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

Ernest L. Padilla, Esq.  
Legal Counsel to the Division  
State Land Office Bldg.  
Santa Fe, New Mexico 87501

For the Applicant:

William F. Carr, Esq.  
CAMPBELL, BYRD, & BLACK P.A.  
Jefferson Place  
Santa Fe, New Mexico 87501  
and  
Guy T. Buell, Esq.  
SCOTT, DOUGLASS, & KEETON  
Twelfth Floor  
City National Bank Bldg.  
Austin, Texas 78701  
and  
Clyde A. Mote, Esq.  
Amoco Production Company

## DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Sanders, would you state your complete name, by whom you're employed, and in what capacity, and in what location please?

A My name is L. J. Sanders Junior. I'm employed as Staff Petroleum Engineer and Associate by Amoco Production Company in Houston, Texas.

Q Mr. Sanders, in this hearing here today we're recommending temporary operating rules for the Bravo Dome Unit area. In connection with that temporary rule request we're making, have you made any study to enable you to make a recommendation to this Commission as to the temporary period that we might possibly need?

A Yes, I have, and I would recommend that we have a period of three years after first production into a pipeline.

Q From the unit?

A From the unit.

Q All right, sir, in connection with your recommendation, will you direct your attention now to what has been identified as Amoco Exhibit Sixteen and state for the record what Exhibit Sixteen reflects?

1  
2           A           Exhibit Sixteen is a timing calculation  
3 for an initial 25 psi reservoir pressure decrease using the  
4 Heimann No. 1 and State "FI" No. 1 area characteristics. This  
5 is the area where we had run our -- was two of the sites  
6 where we ran pressure interference tests.

7           Q           Would you point out the Heimann area  
8 generally on Exhibit One and just say that it appears to be  
9 about in the south central -- central south central area?

10          A           Well, it's in the -- might be called the  
11 east central. The Heimann 1 was our producing well. It's  
12 located in Township 19, 33 North, and then in the east central  
13 at the State "FI" site, this one -- this is a lease that's  
14 in Township 20, Range 34.

15          Q           All right, just what did you do in  
16 making your study to prepare yourself to make your recom-  
17 mendation to this Commission?

18          A           I looked at time here as the time that  
19 it would take to produce enough gas from an area to cause  
20 25 psi decrease. I picked an area five miles by five miles  
21 that was developed on 640-acres. I picked this large of an  
22 area because in the center of it is going to be a pressure  
23 observation well and I wanted to minimize as much as I could  
24 the interference from outside, just this five mile area that  
25 would facilitate evaluation of the tests.

1  
2 And in this five mile tract there's 10240  
3 acres. The net wells inside the test site, there's fifteen  
4 producers and one pressure observation well.

5 Millions of cubic feet of CO<sub>2</sub> were re-  
6 moved from this area to lower the initial pressure, which was  
7 375 psig, 25 psi, is 15.2 BCF, and the time to remove this  
8 15.2 BCF, using a million a day, million cubic feet per day  
9 producing rate for the producing wells, which I believe will  
10 be reasonable, that calculates then to be 2.78 years, the  
11 time required to remove enough gas to cause a 25 psi pressure  
12 decrease, and this is about a 7 percent pressure depletion  
13 from the initial pressure point.

14 Q So your 25 psi drawdown in your obser-  
15 vation well doesn't look like much when you're just saying  
16 25 psi, but percentagewise the original pressure that would  
17 be in your observation well is a significant percent?

18 A Yes, it is.

19 Q Now if your prediction on the original  
20 gas in place in the area that you studied is wrong in that  
21 there is less original gas in place, we should see the pres-  
22 sure interference in the observation well sooner than three  
23 years?

24 A We'll see it sooner and we'll see a  
25 larger decrease.

1  
2 Q And by the same token, if you have under-  
3 stated the original gas in place, and hopefully, I'm going  
4 to say I hope that's the case, it will take a little longer  
5 than your predicted three years to see the same incremental  
6 decrease in pressure in your observation well?

7 A Yes, sir, that's -- that's correct. }

8 Q All right, sir. I want you to turn now  
9 to your Exhibit Seventeen more or less a summary of the plans  
10 that Amoco intends to initiate in this three year period that  
11 we're asking for after the first unit production into a  
12 pipeline, to show the Commission the type of program we will  
13 have to gather data that we think we'll need to show defini-  
14 tive 640-acre spacing is correct?

15 A Yes, it is.

16 Q Why don't you, since Exhibit Seventeen  
17 is self-explanatory, why don't you just kind of summarize  
18 each of the four numbers, paragraphs, on the exhibit?

19 A Okay. Our plans at this time  
20 is there will be a central gathering system installed ulti-  
21 mately in approximately each quarter -- quadrant of the  
22 productive area of the unit.

23 Drilling that will be done in the next  
24 three to four years will be concentrated 640-acre development  
25 for initial production, with the exception of scattered

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STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION  
STATE LAND OFFICE BLDG.  
SANTA FE, NEW MEXICO  
18 March 1981

COMMISSION HEARING

-----  
IN THE MATTER OF: )  
 )  
 )  
Application of Amoco Production Com- )  
pany for temporary special pool ) CASE  
rules, Union, Harding, and Quay ) 7198  
Counties, New Mexico. )  
 )

-----  
BEFORE: Commissioner Ramey  
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

Ernest L. Padilla, Esq.  
Legal Counsel to the Division  
State Land Office Bldg.  
Santa Fe, New Mexico 87501

For the Applicant:

William F. Carr, Esq.  
CAMPBELL, BYRD, & BLACK P.A.  
Jefferson Place  
Santa Fe, New Mexico 87501  
and  
Guy T. Buell, Esq.  
SCOTT, DOUGLASS, & KEETON  
Twelfth Floor  
City National Bank Bldg.  
Austin, Texas 78701  
and  
Clyde A. Mote, Esq.  
Amoco Production Company

## DIRECT EXAMINATION

BY MR. BUELL:

Q Mr. Sanders, would you state your complete name, by whom you're employed, and in what capacity, and in what location please?

A My name is L. J. Sanders Junior. I'm employed as Staff Petroleum Engineer and Associate by Amoco Production Company in Houston, Texas.

Q Mr. Sanders, in this hearing here today we're recommending temporary operating rules for the Bravo Dome Unit area. In connection with that temporary rule request we're making, have you made any study to enable you to make a recommendation to this Commission as to the temporary period that we might possibly need?

A Yes, I have, and I would recommend that we have a period of three years after first production into a pipeline.

Q From the unit?

A From the unit.

Q All right, sir, in connection with your recommendation, will you direct your attention now to what has been identified as Amoco Exhibit Sixteen and state for the record what Exhibit Sixteen reflects?

1  
2           A           Exhibit Sixteen is a timing calculation  
3 for an initial 25 psi reservoir pressure decrease using the  
4 Heimann No. 1 and State "FI" No. 1 area characteristics. This  
5 is the area where we had run our -- was two of the sites  
6 where we ran pressure interference tests.

7           Q           Would you point out the Heimann area  
8 generally on Exhibit One and just say that it appears to be  
9 about in the south central -- central south central area?

10          A           Well, it's in the -- might be called the  
11 east central. The Heimann 1 was our producing well. It's  
12 located in Township 19, 33 North, and then in the east central  
13 at the State "FI" site, this one -- this is a lease that's  
14 in Township 20, Range 34.

15          Q           All right, just what did you do in  
16 making your study to prepare yourself to make your recom-  
17 mendation to this Commission?

18          A           I looked at time here as the time that  
19 it would take to produce enough gas from an area to cause  
20 25 psi decrease. I picked an area five miles by five miles  
21 that was developed on 640-acres. I picked this large of an  
22 area because in the center of it is going to be a pressure  
23 observation well and I wanted to minimize as much as I could  
24 the interference from outside, just this five mile area that  
25 would facilitate evaluation of the tests.

1  
2 And in this five mile tract there's 10240  
3 acres. The net wells inside the test site, there's fifteen  
4 producers and one pressure observation well.

5 Millions of cubic feet of CO<sub>2</sub> were re-  
6 moved from this area to lower the initial pressure, which was  
7 375 psig, 25 psi, is 15.2 BCF, and the time to remove this  
8 15.2 BCF, using a million a day, million cubic feet per day  
9 producing rate for the producing wells, which I believe will  
10 be reasonable, that calculates then to be 2.78 years, the  
11 time required to remove enough gas to cause a 25 psi pressure  
12 decrease, and this is about a 7 percent pressure depletion  
13 from the initial pressure point.

14 Q So your 25 psi drawdown in your obser-  
15 vation well doesn't look like much when you're just saying  
16 25 psi, but percentagewise the original pressure that would  
17 be in your observation well is a significant percent?

18 A Yes, it is.

19 Q Now if your prediction on the original  
20 gas in place in the area that you studied is wrong in that  
21 there is less original gas in place, we should see the pres-  
22 sure interference in the observation well sooner than three  
23 years?

24 A We'll see it sooner and we'll see a  
25 larger decrease.

1  
2 Q And by the same token, if you have under-  
3 stated the original gas in place, and hopefully, I'm going  
4 to say I hope that's the case, it will take a little longer  
5 than your predicted three years to see the same incremental  
6 decrease in pressure in your observation well?

7 A Yes, sir, that's -- that's correct. }

8 Q All right, sir. I want you to turn now  
9 to your Exhibit Seventeen more or less a summary of the plans  
10 that Amoco intends to initiate in this three year period that  
11 we're asking for after the first unit production into a  
12 pipeline, to show the Commission the type of program we will  
13 have to gather data that we think we'll need to show defini-  
14 tive 640-acre spacing is correct?

15 A Yes, it is.

16 Q Why don't you, since Exhibit Seventeen  
17 is self-explanatory, why don't you just kind of summarize  
18 each of the four numbers, paragraphs, on the exhibit?

19 A Okay. Our plans at this time  
20 is there will be a central gathering system installed ulti-  
21 mately in approximately each quarter -- quadrant of the  
22 productive area of the unit.

23 Drilling that will be done in the next  
24 three to four years will be concentrated 640-acre development  
25 for initial production, with the exception of scattered

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION COMMISSION

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

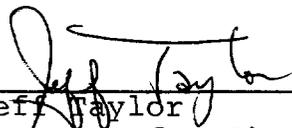
CASE NO. 8190

APPLICATION OF AMOCO PRODUCTION  
COMPANY FOR TEMPORARY SPACING RULES,  
UNION, HARDING, AND QUAY COUNTIES,  
NEW MEXICO.

ENTRY OF APPEARANCE

Jeff Taylor, Attorney for Jim Baca, Commissioner of Public  
Lands of the State of New Mexico, hereby enters his appearance on  
behalf of the Commissioner in the above-entitled action.

Respectfully submitted,

  
\_\_\_\_\_  
Jeff Taylor  
Attorney for Jim Baca,  
Commissioner of Public Lands  
for the State of New Mexico  
P.O. Box 1148  
Santa Fe, New Mexico 87504-1148  
(505) 827-5713

Bravo Dome 160-Acre Area

HARDING COUNTY, NEW MEXICO

TOWNSHIP 17 NORTH, RANGE 30 EAST, NMPM

Section 1: N/2 and SE/4 and ~~W/2 SE/4~~ E/2 SW/4  
Section 11: SE/4 and ~~W/2 SW/4~~ E/2 SW/4  
Section 12: E/2 and SW/4 and E/2 NW/4  
Section 13: All  
Section 14: E/2 and E/2 W/2 and SW/4 NW/4  
Section 15: SE/4 NE/4  
Section 22: SE/4 SE/4  
Sections 23 through 25: All  
Section 26: NE/4 and ~~W/2 NW/4~~ E/2 NW/4  
Section 27: NE/4 NE/4  
Section 35: SE/4  
Section 36: All

TOWNSHIP 17 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 30 EAST, NMPM

Sections 1 and 2: All  
Section 3: E/2 E/2 and SW/4 SE/4  
Section 10: E/2 NE/4  
Section 11: N/2  
Sections 12 through 14: All  
Section 23: E/2 and E/2 W/2  
Section 24: All  
Section 25: E/2 and E/2 W/2 and W/2 NW/4 and NW/4 SW/4  
Section 26: NE/4 and E/2 NW/4 and N/2 S/2  
Section 36: All

TOWNSHIP 18 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 29 EAST, NMPM

Section 1: NE/4 and E/2 NW/4

TOWNSHIP 19 NORTH, RANGE 30 EAST, NMPM

Sections 1 through 4: All  
Section 5: E/2  
Section 6: E/2 SE/4 and NW/4 SE/4 and NE/4 SW/4 E/2 SE/4  
Section 7: NE/4 NE/4 and ~~NE/4 SE/4~~ and SW/4 SE/4 and SE/4 SW/4  
~~Section 8: N/2 and SE/4 and SE/4 SW/4 All~~  
Sections 9 through 16: All  
Section 17: N/2 and SE/4  
Section 18: NE/4 NE/4  
Section 20: W/2 NE/4 and S/2 SE/4  
Sections 21 through 28: All  
Section 29: NE/4  
Section 32: NE/4 NE/4  
Section 33: NW/4 and W/2 NE/4 and NE/4 NE/4 and NW/4 SE/4 and NE/4 SW/4  
Section 34: N/2 and E/2 SE/4  
Sections 35 and 36: All

TOWNSHIP 19 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 29 EAST, NMPM

Sections 1 and 2: All  
Section 3: E/2 and SW/4 and S/2 NW/4 and Lot 3  
Section 4: Lot 4 and SE/4 NE/4 and E/2 SE/4  
Section 5: SW/4 and SW/4 SE/4  
Section 6: Lots 1, 2, and 3 and SE/4 NW/4 and S/2 NE/4 and SE/4 and NE/4 SW/4

Township 20 North, Range 29 East, NMPM (cont)

Section 7: Lots 2 and 3 and NE/4 SW/4 and N/2 SE/4  
Section 8: NW/4 NW/4 and W/2 SW/4  
Section 9: NE/4 NW/4 and ~~SW/4 NE/4~~ and E/2 E/2 <sup>NE/4</sup>  
Sections 10 through 15: All  
Section 16: E/2 and NE/4 NW/4 and S/2 SW/4 and NW/4 SW/4  
Section 17: S/2 and SW/4 NE/4 and S/2 NW/4 and NW/4 NW/4  
Section 18: Lots 1 through 4 and SE/4 NW/4 and E/2 SW/4  
and E/2  
Section 19: Lots 1 and 2 and E/2 W/2 and E/2  
Section 20: All  
Section 21: W/2 NW/4 and NW/4 SW/4 and NE/4 and NE/4 SE/4  
Sections 22 through 26: All  
Section 27: N/2 and SE/4 and NE/4 SW/4  
Section 28: NE/4 NE/4  
Section 29: N/2  
Section 30: N/2 NE/4 and SE/4 NE/4  
Section 34: NE/4 NE/4  
Section 35: N/2 and SE/4  
Section 36: All

TOWNSHIP 20 NORTH, RANGE 30 EAST, NMPM  
Sections 1 through 35: All

TOWNSHIP 20 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: All

Order No. R-  
Exhibit "A"  
Page 2 of 2

Stop Here

Bravo Dome 640-Acre Area

UNION COUNTY, NEW MEXICO

TOWNSHIP 18 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 35 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 36 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 37 EAST, NMPM  
Section 6 and 7: All  
Sections 18 and 19: All  
Section 30 and 31: All

TOWNSHIP 19 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 35 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 36 EAST, NMPM  
Section 16: All  
Section 18: S/2  
Sections 19 and 20: All  
Section 21: W/2, W/2 NE/4 and SE/4 NE/4  
Section 26: S/2 S/2  
Section 28: W/2  
Sections 29 through 36: All

TOWNSHIP 20 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 35 EAST, NMPM  
Section 3: W/2  
Sections 4 through 10: All  
Section 11: SW/4  
Section 14: NW/4  
Sections 15 through 22: All  
Sections 23: NW/4  
Sections 27 through 34: All

TOWNSHIP 21 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 35 EAST, NMPM  
Sections 1 through 24: All  
Section 25: N/2 and SW/4  
Section 26: All  
Section 27: NE/4 and N/2 NW/4  
Sections 28 through 33: All

TOWNSHIP 22 NORTH, RANGE 30 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 35 EAST, NMPM

Section 5: S/2  
Sections 6 through 8: All  
Section 9: W/2 and SE/4  
Section 10: S/2 S/2  
Sections 15 through 21: All  
Section 22: N/2  
Section 27: SW/4  
Sections 28 through 33: All  
Section 34: NW/4 and N/2 SW/4  
Section 36: All

TOWNSHIP 23 NORTH, RANGE 30 EAST, NMPM

Section 36: All

TOWNSHIP 23 NORTH, RANGE 31 EAST, NMPM

Section 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 33 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 34 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 35 EAST, NMPM

Section 31: All

TOWNSHIP 24 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 24 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 24 NORTH, RANGE 33 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 24 NORTH, RANGE 34 EAST, NMPM

Sections 1 through 36: All

Harding County, New Mexico

TOWNSHIP 17 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 17 NORTH, RANGE 33 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 33 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 33 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 29 EAST, NMPM  
Sections 1 through 27: All

Section 28: N/2 and SE/4 and E/2 SW/4

Section 29: All

Section 30: Lots 1, 2 and 4 and E/2 NW/4 and NE/4 and N/2 SE/4 and SE/4 SE/4

Section 31: All

Section 32: W/2 and SE/4 and W/2 NE/4 and SE/4 NE/4

Section 33: W/2 SW/4 and NE/4 SW/4 and NE/4 NW/4 and N/2 NE/4

Sections 34 through 36: All

TOWNSHIP 21 NORTH, RANGE 30 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: All

QUAY COUNTY, NEW MEXICO

TOWNSHIP 16 NORTH, RANGE 34 EAST, NMPM

Section 3: Lots 3 through 6, 11 and 12

Section 4: Lots 1, 2, 5 through 12, N/2 SE/4 and SW/4

TOWNSHIP 16 NORTH, RANGE 35 EAST, NMPM

Section 1: Lots 1 through 8, NW/4 SW/4 and S/2 SW/4

Sections 2 through 6: All

Section 7: Lots 1, 2, E/2 NW/4 and E/2

Sections 8 through 10: All

Section 11: NW/4, N/2 SW/4 and N/2 S/2 SW/4, and N/2 S/2 S/2 SW/4

TOWNSHIP 16 NORTH, RANGE 36 EAST, NMPM

Section 5: Lots 4 and 5

Section 6: Lots 1 through 8 and 10

TOWNSHIP 17 NORTH, RANGE 34 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 17 NORTH, RANGE 35 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 17 NORTH, RANGE 36 EAST, NMPM

Sections 1 through 36: All

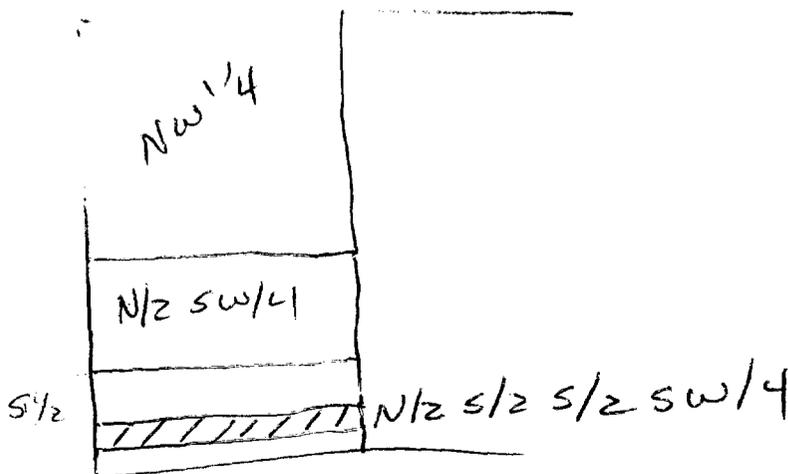
TOWNSHIP 17 NORTH, RANGE 37 EAST, NMPM

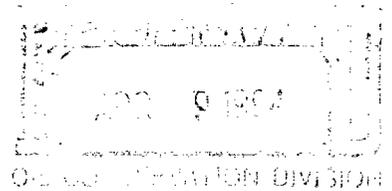
Sections 6 and 7: All

Sections 18 and 19: All

Sections 30 and 31: All

RA/jtd  
LR222/E





**Amoco Production Company (USA)**

Houston Region  
501 WestLake Park Boulevard  
Post Office Box 3092  
Houston, Texas 77253

Clyde A. Mote  
Attorney

April 4, 1984

*Case 8190*

Re: Request for Commission Hearing to  
Establish Temporary Spacing Rules  
Bravo Dome CO<sub>2</sub> Gas Area; Union,  
Harding and Quay Counties, New Mexico

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
P. O. Box 2088  
Santa Fe, NM 87501

Attention: Mr. Joe D. Ramey  
Chairman

Amoco Production Company respectfully requests a hearing be scheduled before the Oil Conservation Commission to establish temporary spacing rules for the Bravo Dome CO<sub>2</sub> Gas Unit Area in Union, Harding and Quay Counties, New Mexico. Amoco Production Company will request 640 acre spacing units, with a well location of not less than 1650' to the Outer Boundary of each section and no nearer than 330' to any governmental quarter-quarter section line. Further, we will request that the rules be effective for a three year period commencing upon the date of an affirmative order by the Commission.

Attached for your information is a map of the Bravo Dome CO<sub>2</sub> Gas Unit, and a tabulation of the Outer Boundary description.

It is my understanding that you have scheduled a Commission hearing for May 10, 1984. If at all possible, we would like to have this item placed on the docket to be heard on that date.

OP30LR064

April 4, 1984  
Page 2

Please feel free to contact me or Jim Allen (713) 556-3931 for any additional information concerning the hearing.

Yours very truly,

A handwritten signature in cursive script that reads "Clyde Mote". The signature is written in black ink and is positioned above the typed name "C. A. Mote".

C. A. Mote

CAM/gj

cc: Bill Carr

# BRAVO DOME CARBON DIOXIDE GAS UNIT

## UNION COUNTY, NEW MEXICO

TOWNSHIP 18 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 35 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 36 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 18 NORTH, RANGE 37 EAST, NMPM  
Section 6 and 7: All  
Sections 18 and 19: All  
Section 30 and 31: All

TOWNSHIP 19 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 35 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 36 EAST, NMPM  
Section 16: All  
Section 18: S/2  
Sections 19 and 20: All  
Section 21: W/2, W/2 NE/4 and SE/4 NE/4  
Section 26: S/2 S/2  
Section 28: W/2  
Sections 29 through 36: All

TOWNSHIP 20 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 35 EAST, NMPM  
Section 3: W/2  
Sections 4 through 10: All  
Section 11: SW/4  
Section 14: NW/4  
Sections 15 through 22: All  
Sections 23: NW/4  
Sections 27 through 34: All

TOWNSHIP 21 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 35 EAST, NMPM

Sections 1 through 24: All

Section 25: N/2 and SW/4

Section 26: All

Section 27: NE/4 and N/2 NW/4

Sections 28 through 33: All

TOWNSHIP 22 NORTH, RANGE 30 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 33 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 34 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 22 NORTH, RANGE 35 EAST, NMPM

Section 5: S/2

Sections 6 through 8: All

Section 9: W/2 and SE/4

Section 10: S/2 S/2

Sections 15 through 21: All

Section 22: N/2

Section 27: SW/4

Sections 28 through 33: All

Section 34: NW/4 and N/2 SW/4

Section 36: All

TOWNSHIP 23 NORTH, RANGE 30 EAST, NMPM

Section 36: All

TOWNSHIP 23 NORTH, RANGE 31 EAST, NMPM

Section 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 32 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 33 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 34 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 23 NORTH, RANGE 35 EAST, NMPM

Section 31: All

TOWNSHIP 24 NORTH, RANGE 31 EAST, NMPM

Sections 1 through 36: All

TOWNSHIP 24 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: A11

TOWNSHIP 24 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: A11

TOWNSHIP 24 NORTH, RANGE 34 EAST, NMPM  
Sections 1 through 36: A11

HARDING COUNTY, NEW MEXICO

TOWNSHIP 17 NORTH, RANGE 30 EAST, NMPM  
Section 1: N/2 and SE/4 and W/2 SE/4  
Section 11: SE/4 and W/2 SW/4  
Section 12: E/2 and SW/4 and E/2 NW/4  
Section 13: A11  
Section 14: E/2 and E/2 W/2 and SW/4 NW/4  
Section 15: SE/4 NE/4  
Section 22: SE/4 SE/4  
Sections 23 through 25: A11  
Section 26: NE/4 and W/2 NW/4  
Section 27: NE/4 NE/4  
Section 35: SE/4  
Section 36: A11

TOWNSHIP 17 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: A11

TOWNSHIP 17 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: A11

TOWNSHIP 17 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: A11

TOWNSHIP 18 NORTH, RANGE 30 EAST, NMPM  
Sections 1 and 2: A11  
Section 3: E/2 E/2 and SW/4 SE/4  
Section 10: E/2 NE/4  
Section 11: N/2  
Sections 12 through 14: A11  
Section 23: E/2 and E/2 W/2  
Section 24: A11  
Section 25: E/2 and E/2 W/2 and W/2 NW/4 and NW/4 SW/4  
Section 26: NE/4 and E/2 NW/4 and N/2 S/2  
Section 36: A11

TOWNSHIP 18 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: A11

TOWNSHIP 18 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: A11

TOWNSHIP 18 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 29 EAST, NMPM  
Section 1: NE/4 and E/2 NW/4

TOWNSHIP 19 NORTH, RANGE 30 EAST, NMPM  
Sections 1 through 4: All  
Section 5: E/2  
Section 6: E/2 SE/4 and NW/4 SE/4 and NE/4 SW/4  
Section 7: NE/4 NE/4 and NE/4 SE/4 and SW/4 SE/4 and SE/4 SW/4  
Section 8: N/2 and SE/4 and SE/4 SW/4  
Sections 9 through 16: All  
Section 17: N/2 and SE/4  
Section 18: NE/4 NE/4  
Section 20: W/2 NE/4 and S/2 SE/4  
Sections 21 through 28: All  
Section 29: NE/4  
Section 32: NE/4 NE/4  
Section 33: NW/4 and W/2 NE/4 and NE/4 NE/4 and NW/4 SE/4 and  
NE/4 SW/4  
Section 34: N/2 and E/2 SE/4  
Sections 35 and 36: All

TOWNSHIP 19 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 19 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 29 EAST, NMPM  
Sections 1 and 2: All  
Section 3: E/2 and SW/4 and S/2 NW/4 and Lot 3  
Section 4: Lot 4 and SE/4 NE/4 and E/2 SE/4  
Section 5: SW/4 and SW/4 SE/4  
Section 6: Lots 1, 2, and 3 and SE/4 NW/4 and S/2 NE/4 and  
SE/4 and NE/4 SW/4  
Section 7: Lots 2 and 3 and NE/4 SW/4 and N/2 SE/4  
Section 8: NW/4 NW/4 and W/2 SW/4  
Section 9: NE/4 NW/4 and SW/4 NE/4 and E/2 E/2  
Sections 10 through 15: All  
Section 16: E/2 and NE/4 NW/4 and S/2 SW/4 and NW/4 SW/4  
Section 17: S/2 and SW/4 NE/4 and S/2 NW/4 and NW/4 NW/4  
Section 18: Lots 1 through 4 and SE/4 NW/4 and E/2 SW/4  
and E/2  
Section 19: Lots 1 and 2 and E/2 W/2 and E/2  
Section 20: All  
Section 21: W/2 NW/4 and NW/4 SW/4 and NE/4 and NE/4 SE/4  
Sections 22 through 26: All  
Section 27: N/2 and SE/4 and NE/4 SW/4

Section 28: NE/4 NE/4  
Section 29: N/2  
Section 30: N/2 NE/4 and SE/4 NE/4  
Section 34: NE/4 NE/4  
Section 35: N/2 and SE/4  
Section 36: All

TOWNSHIP 20 NORTH, RANGE 30 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 20 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 29 EAST, NMPM  
Sections 1 through 27: All  
Section 28: N/2 and SE/4 and E/2 SW/4  
Section 29: All  
Section 30: Lots 1, 2 and 4 and E/2 NW/4 and NE/4 and N/2  
SE/4 and SE/4 SE/4  
Section 31: All  
Section 32: W/2 and SE/4 and W/2 NE/4 and SE/4 NE/4  
Section 33: W/2 SW/4 and NE/4 SW/4 and NE/4 NW/4 and N/2  
NE/4  
Sections 34 through 36: All

TOWNSHIP 21 NORTH, RANGE 30 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 31 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 32 EAST, NMPM  
Sections 1 through 36: All

TOWNSHIP 21 NORTH, RANGE 33 EAST, NMPM  
Sections 1 through 36: All

QUAY COUNTY, NEW MEXICO

TOWNSHIP 16 NORTH, RANGE 34 EAST, NMPM  
Section 3: Lots 3 through 6, 11 and 12  
Section 4: Lots 1, 2, 5 through 12, N/2 SE/4 and SW/4

TOWNSHIP 16 NORTH, RANGE 35 EAST, NMPM

Section 1: Lots 1 through 8, NW/4 SW/4 and S/2 SW/4  
Sections 2 through 6: A11  
Section 7: Lots 1, 2, E/2 NW/4 and E/2  
Sections 8 through 10: A11  
Section 11: NW/4, N/2 SW/4 and N/2 S/2 SW/4, and N/2 S/2  
S/2 SW/4

TOWNSHIP 16 NORTH, RANGE 36 EAST, NMPM

Section 5: Lots 4 and 5  
Section 6: Lots 1 through 8 and 10

TOWNSHIP 17 NORTH, RANGE 34 EAST, NMPM

Sections 1 through 36: A11

TOWNSHIP 17 NORTH, RANGE 35 EAST, NMPM

Sections 1 through 36: A11

TOWNSHIP 17 NORTH, RANGE 36 EAST, NMPM

Sections 1 through 36: A11

TOWNSHIP 17 NORTH, RANGE 37 EAST, NMPM

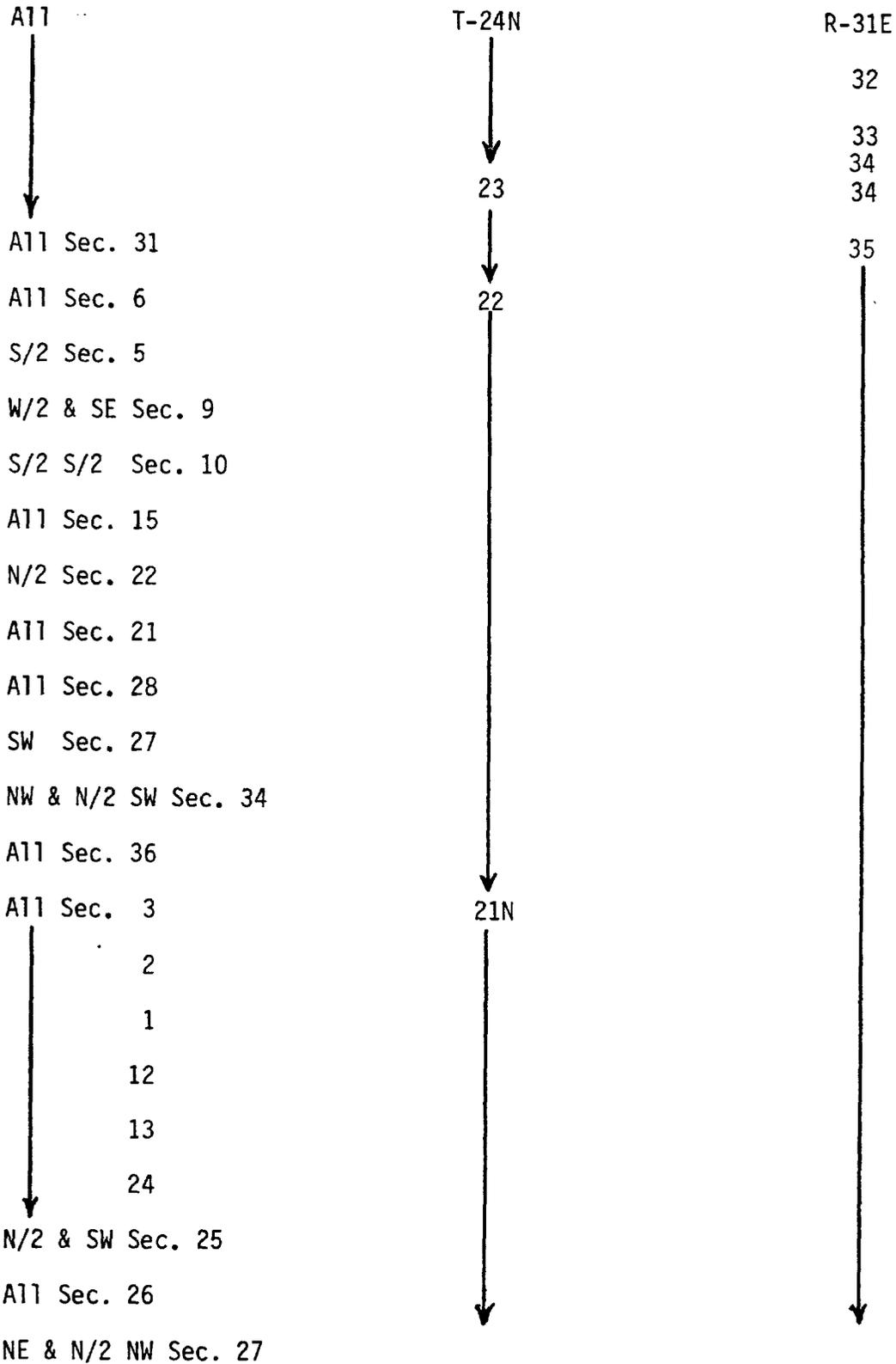
Sections 6 and 7: A11  
Sections 18 and 19: A11  
Sections 30 and 31: A11

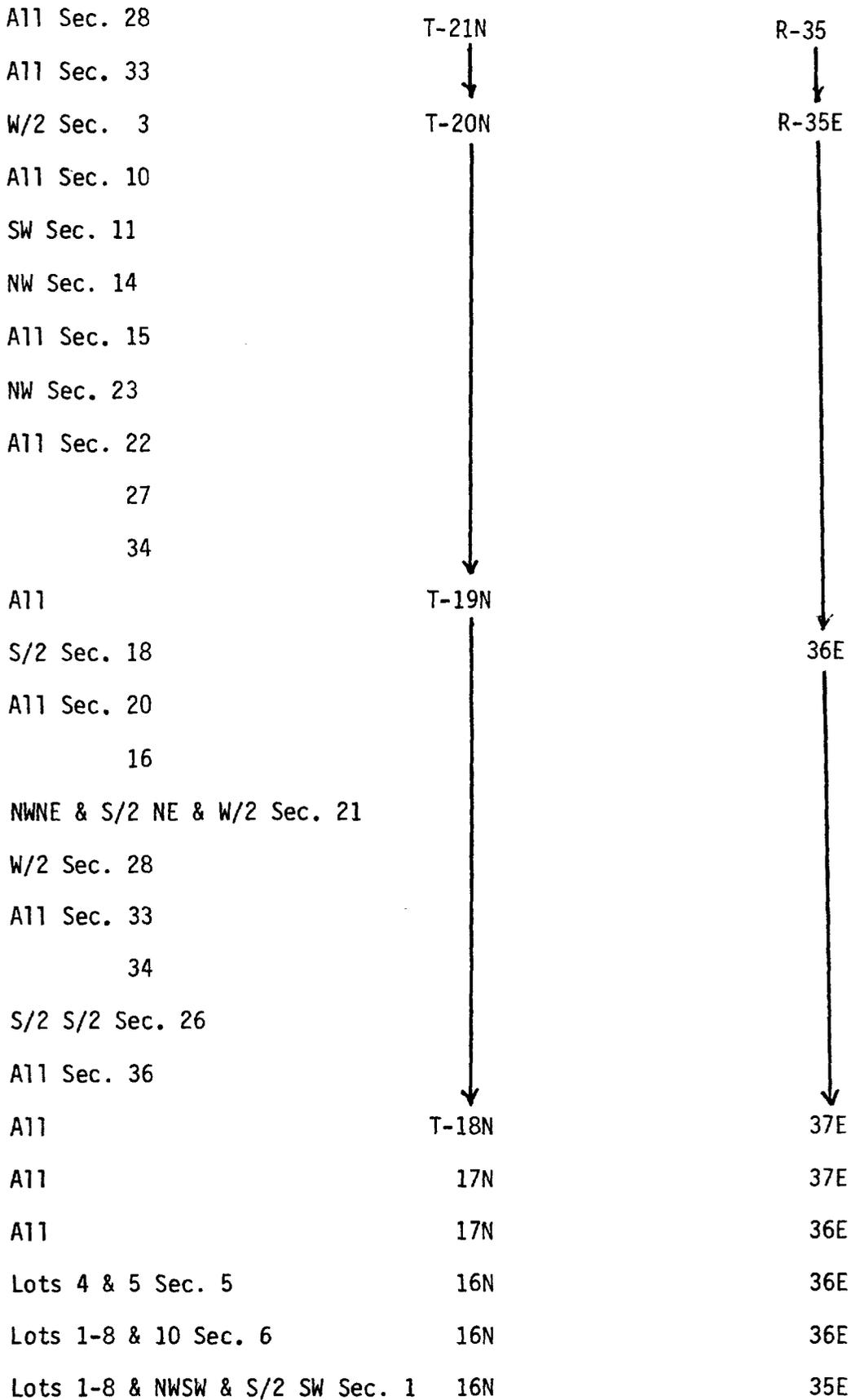
RA/jtp  
LR222/E

March 30, 1981

BRAVO DOME CARBON DIOXIDE GAS UNIT OUTLINE

All lands within the outer boundaries of the following:





A11 Sec. 2  
W/2 Sec. 11 except S/2 S/2  
S/2 SW  
A11 Sec. 10  
9  
8  
N/2 & SE Sec. 7  
A11 Sec. 6  
A11  
Lots 3,4,5,6,11,& 12 Sec. 3  
Lots 1 & 2 & 5-12 & N/2 SE &  
SW Sec. 4  
A11  
A11 Sec. 36  
SE Sec. 35  
A11 Sec. 25  
NE & E/2 NW Sec. 26  
NENE Sec. 27  
SESE Sec. 22  
A11 Sec. 23  
E/2 & E/2 W/2 & SWNW Sec. 14  
SENE Sec. 15  
E/2 SW & SE Sec. 11  
S/2 & NE & E/2 NW Sec. 12

T-16N



T-17N

16N



17N



R-35E



34E

34E



33E

32

31

30



N/2 & SE & E/2 SW Sec. 1

T-17N

R-30

A11 Sec. 36

18N

A11 Sec. 25 except SWSW

N/2 S/2 & NE & E/2 NW Sec. 26

E/2 & E/2 W/2 Sec. 23

A11 Sec. 14

A11 Sec. 12

N/2 Sec. 11

E/2 NE Sec. 10

E/2 E/2 & SWSE Sec. 3

E/2 SE & N/2 Sec. 34

T-19N

R-30E

N/2 N/2 & SWNE & NWSE &  
NESW & S/2 NW Sec. 33

NENE Sec. 32

A11 Sec. 28

NE Sec. 29

S/2 SE & W/2 NE Sec. 20

A11 Sec. 21

SE & N/2 Sec. 17

NENE Sec. 18

SESW & SWSE & NESE  
& NENE Sec. 7

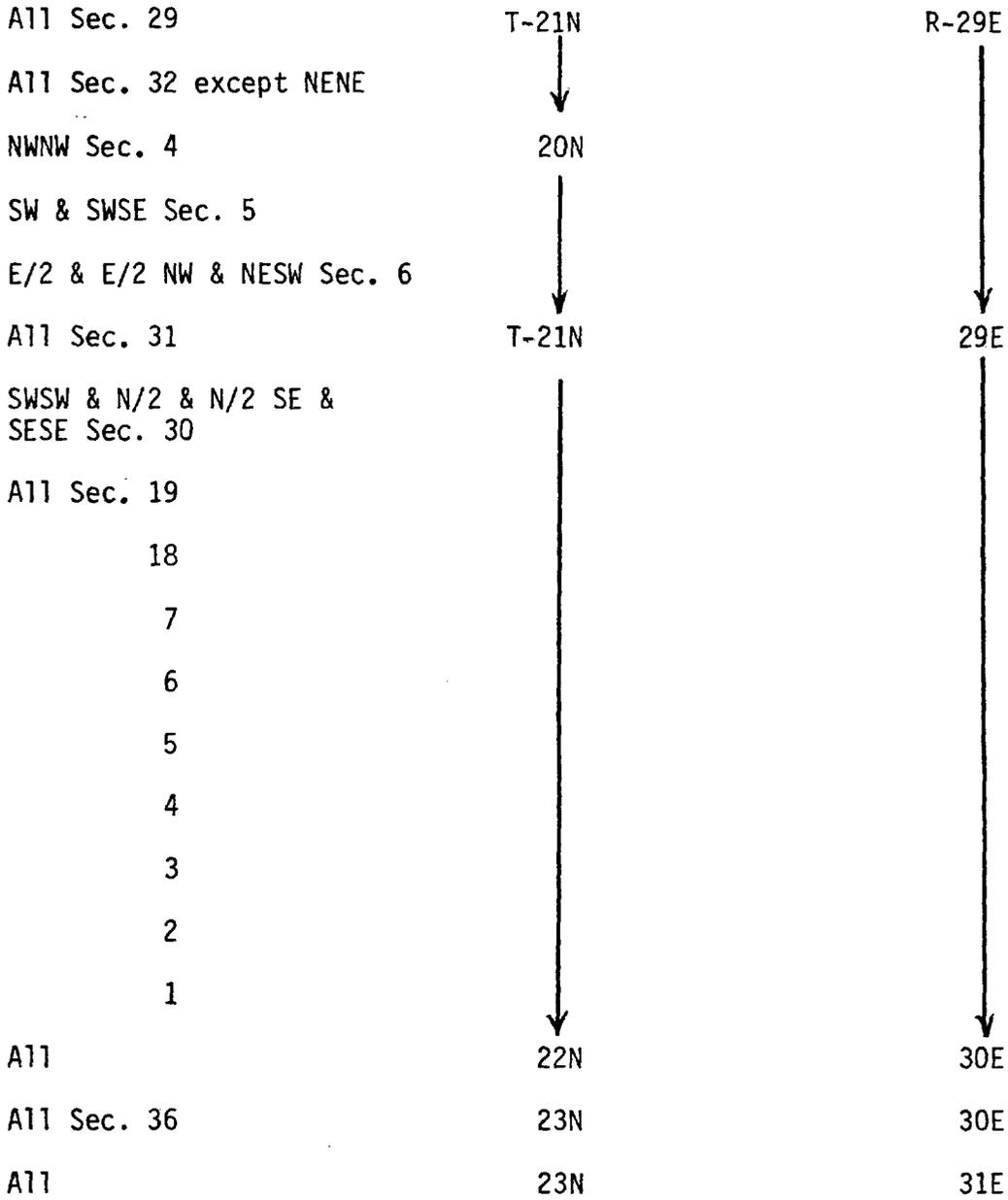
A11 Sec. 8 except  
SWSW & N/2 SW

E/2 SE & NWSE & NESW Sec. 6

E/2 Sec. 5



A11	T- 20N	R- 30E
NE & E/2 NW Sec. 1	19N	29E
A11 Sec. 36	20N	29E
N/2 & SE Sec. 35	↓	↓
NENE Sec. 34	↓	↓
N/2 & SE & NESW Sec. 27	↓	↓
NENE Sec. 28	↓	↓
A11 Sec. 22	↓	↓
NE & NESE & W/2 NW & NWSW Sec. 21	↓	↓
A11 Sec. 20	↓	↓
N/2 Sec. 29.	↓	↓
N/2 NE & SENE Sec. 30	20N	29E
E/2 & E/2 W/2 & W/2 NW Sec. 19	↓	↓
A11 Sec. 18 except NENW	↓	↓
N/2 S/2 & SWNW Sec. 7	↓	↓
W/2 SW & NWNW Sec. 8	↓	↓
W/2 NW & SENW & SWNE & S/2 Sec. 17	↓	↓
W/2 SW & SESW & E/2 & NENW Sec. 16	↓	↓
E/2 E/2 & SWNE & NENW Sec. 9	↓	↓
E/2 SE & SENE Sec. 4	↓	↓
S/2 & S/2 N/2 & NENW & N/2 NE Sec. 3	↓	↓
A11 Sec. 34	21N	29E
N/2 NE & NENW & N/2 SW & SWSW Sec. 33	↓	↓
E/2 & NW & E/2 SW Sec. 28	↓	↓



ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION



June 11, 1987

GARREY CARRUTHERS  
GOVERNOR

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

Mr. William F. Carr  
Campbell & Black  
Attorneys at Law  
Post Office Box 2208  
Santa Fe, New Mexico

Re: CASE NO. 3190  
ORDER NO. R-7556-A

Applicant:  
OCD (Amoco Production Company)

Dear Sir:

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

Sincerely,

*Florene Davidson*

FLORENE DAVIDSON  
OC Staff Specialist

Copy of order also sent to:

Hobbs OCD           x            
Artesia OCD           x            
Aztec OCD                           

Other Thomas Kellahin, Dan Currens, James Bruce, Kurt Sommer,  
James Hefley