Amoco Production Company

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

R. E. Ogden
Regional Engineering
Manager

October 22, 1985

File: JCA-986.51NM-6131

Re: Application for Saltwater Disposal
Many Gates (Wolfcamp) Pool
St. "DQ" Well No. 3
Unit G, Sec. 32, T-9-S, R-30-E
Chaves County, New Mexico

Case 8767

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

Attention: Mr. R. L. Staments

Gentlemen:

Amoco Production Company respectfully requests the referenced application be docketed for the November 20, 1985 Examiner Hearing. Amoco seeks approval to inject into the Wolfcamp interval 7272' to 7304' currently open in the subject well. Active Many Gates (Wolfcamp) Pool wells are located in the area of the proposed disposal well.

Any questions you may have concerning this matter should be directed to S. P. Scheffler at 713/556-3929.

Yours very truly,

R. E. Ogden

SPS/rr

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-103
Revised 10-1-73

5a. Indicate Type of Lease: State [X] Fee [ ]

5. State Oil & Gas Lease No.: K-5606

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL [X] GAS WELL [ ] OTHER-

7. Unit Agreement Name

2. Name of Operator: AMOCO PRODUCTION COMPANY

8. Farm or Lease Name: State "DQ"

3. Address of Operator: P. O. Box 68, Hobbs, NM 88240

9. Well No.: 3

4. Location of Well
UNIT LETTER G, 2305 FEET FROM THE North LINE AND 2290 FEET FROM THE East LINE, SECTION 32 TOWNSHIP 9-S RANGE 30-E NMPM.

10. Field and Pool, or Wildcat: Und. Many Gates Wolfcamp

15. Elevation (Show whether DF, RT, GR, etc.): 4018.6 GR

12. County: Chaves

6. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [ ]	PLUG AND ABANDONMENT [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [X]	
OTHER [ ]		OTHER [ ]	

7. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Drilled to TD of 7500' and on 3-29-85 ran 5½", 15.5 #, K-55 csg. Csg set at 7506' and cemented with 1950 sxs class 'H' Lt. w/add. Tailed in with 400 sxs class 'H' self stress. Plug down 12:15 p.m. 3-29-85 and circulated 280 sxs cmt. Csg test will be performed when NUSU

0+5 NMOCD, H 1-JRB 1-FIN 1-GCC.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Mary C. Clark TITLE Asst. Admin. Analyst DATE 4-1-85

APPROVED BY [signature] TITLE DISTRICT I SUPERVISOR DATE APR 03 1985

CONDITIONS OF APPROVAL, IF ANY:

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Form C-103
Revised 10-1-73

5a. Indicate Type of Lease: State [X] Fee [ ]

5. State Oil & Gas Lease No.: K-5606

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT —" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL [X] GAS WELL [ ] OTHER-

7. Unit Agreement Name:

2. Name of Operator: AMOCO PRODUCTION COMPANY

8. Farm or Lease Name: State "DQ"

3. Address of Operator: P. O. Box 68, Hobbs, NM 88240

9. Well No.: 3

4. Location of Well: UNIT LETTER G, 2305 FEET FROM THE North LINE AND 2290 FEET FROM THE East LINE, SECTION 32 TOWNSHIP 9-S RANGE 30-E NMPM.

10. Field and Pool, or Wildcat: Und. Many Gates Wolfcamp

15. Elevation (Show whether DF, RT, GR, etc.): 4018.6' GR

12. County: Chaves

6. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK [ ]	PLUG AND ABANDON [ ]	REMEDIAL WORK [ ]	ALTERING CASING [ ]
TEMPORARILY ABANDON [ ]		COMMENCE DRILLING OPNS. [ ]	PLUG AND ABANDONMENT [ ]
PULL OR ALTER CASING [ ]	CHANGE PLANS [ ]	CASING TEST AND CEMENT JOB [X]	
OTHER [ ]		OTHER Spud [X]	

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Spud 10:30 A.M. 2-27-85. Drilled to TD of 40' and set 40' of 13 3/8" conductor. Cemented with 3 cubic yds Redi-mix. Sierra Rig #2 moved on 3-1-85. Began continuous drilling operations 3-4-85 with a 12 1/4" bit. Drilled to TD of 885' and on 3-5-85 set 9 5/8", 36#, K-55 csg. Csg set at 885'. Cemented with 425 sks Class 'C' w/add. Plug down 10:30 A.M. 3-5-85 and circ 140 sks cmt. WOC 18 hrs, tested csg and BOP 1500 psi/OK. Reduced bit to 8 3/4" and resumed drilling.

0+5 NMOCD,H 1-JRB 1-FJN 1-GCC

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED Gary C. Clark TITLE Asst. Admin. Analyst DATE 3-7-85

APPROVED BY Jerry Sexton TITLE DISTRICT 1 SUPERVISOR DATE MAR 11 1985

CONDITIONS OF APPROVAL, IF ANY:

30-005-21011

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OIL CONSERVATION DIVISION

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-101
Revised 10-1-78

5A. Indicate Type of Lease: STATE [X] FEE [ ]

5. State Oil & Gas Lease No.: K-5606

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. Type of Work
b. Type of Well
DRILL [X] DEEPEN [ ] PLUG BACK [ ]
OIL WELL [X] GAS WELL [ ] OTHER SINGLE ZONE [ ] MULTIPLE ZONE [ ]

7. Unit Agreement Name:

8. Farm or Lease Name: State "DQ"

2. Name of Operator: Amoco Production Company

9. Well No.: 3

3. Address of Operator: P.O. Box 68, Hobbs NM 88240

10. Field and Pool, or Wildcat: Many Rates Wolfcamp

4. Location of Well UNIT LETTER G LOCATED 2305 FEET FROM THE North LINE AND 2290 FEET FROM THE East LINE OF SEC. 32 TWP. 9-S RGE. 30-E NMPM

12. County: Chaves

19. Proposed Depth: 7700'
19A. Formation: Wolfcamp
20. Rotary or C.T.: Rotary

21. Elevations (Show whether DF, RT, etc.): 4018.6' GR
21A. Kind & Status Plug Bond: Blanket-on-file
21B. Drilling Contractor: N/A
22. Approx. Date Work will start:

23.

PROPOSED CASING AND CEMENT PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	SACKS OF CEMENT	EST. TOP
12 1/2"	9 3/8"	36#	850'	Circulate	Surface
8 3/4"	5 1/2"	15.5#	7700'	Tie back to 500' above Wolfcamp	6675'
A	*				

Propose to drill and equip subject well in the Wolfcamp formation. After reaching TD, logs will be run and evaluated. Perforate and/or stimulate as necessary in attempting commercial production.

Mud Program: 0-1500' Spud/Native
1500'-6300' Brine
6300'-TD Brine Gel/starch

* 7" csg may be set in 8 3/4" hole followed by 5" csg should any unforeseen problems occur in this section of hole.

BOP Diagram attached

OHC NMOCD, H 1-JRB 1-FJN 1-GCC

Permit Expires 6 Months From Approval Date Unless Drilling Underway.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: IF PROPOSAL IS TO DEEPEN OR PLUG BACK, GIVE DATA ON PRESENT PRODUCTIVE ZONE AND PROPOSED NEW PRODUCTIVE ZONE. GIVE BLOWOUT PREVENTER PROGRAM, IF ANY.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed Gary C. Clark Title Asst. Admin. Analyst Date 12-7-85

(This space for State Use)

APPROVED BY Jerry Sexton TITLE DISTRICT I SUPERVISOR DATE JAN 11 1985

CONDITIONS OF APPROVAL, IF ANY:

OIL CONSERVATION DIVISION
SANTA FE

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator	Lease	Well No.
Amoco Production Company	[illegible] State	[illegible]

Unit Letter	Section	Township	Range	County
[illegible]	32	[illegible] South	30 East	Chaves

Actual Footage Location of Well:
[illegible] feet from the North line and 2290 feet from the West line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
[illegible]	Wolfcamp	Many Gates Wolfcamp	40 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

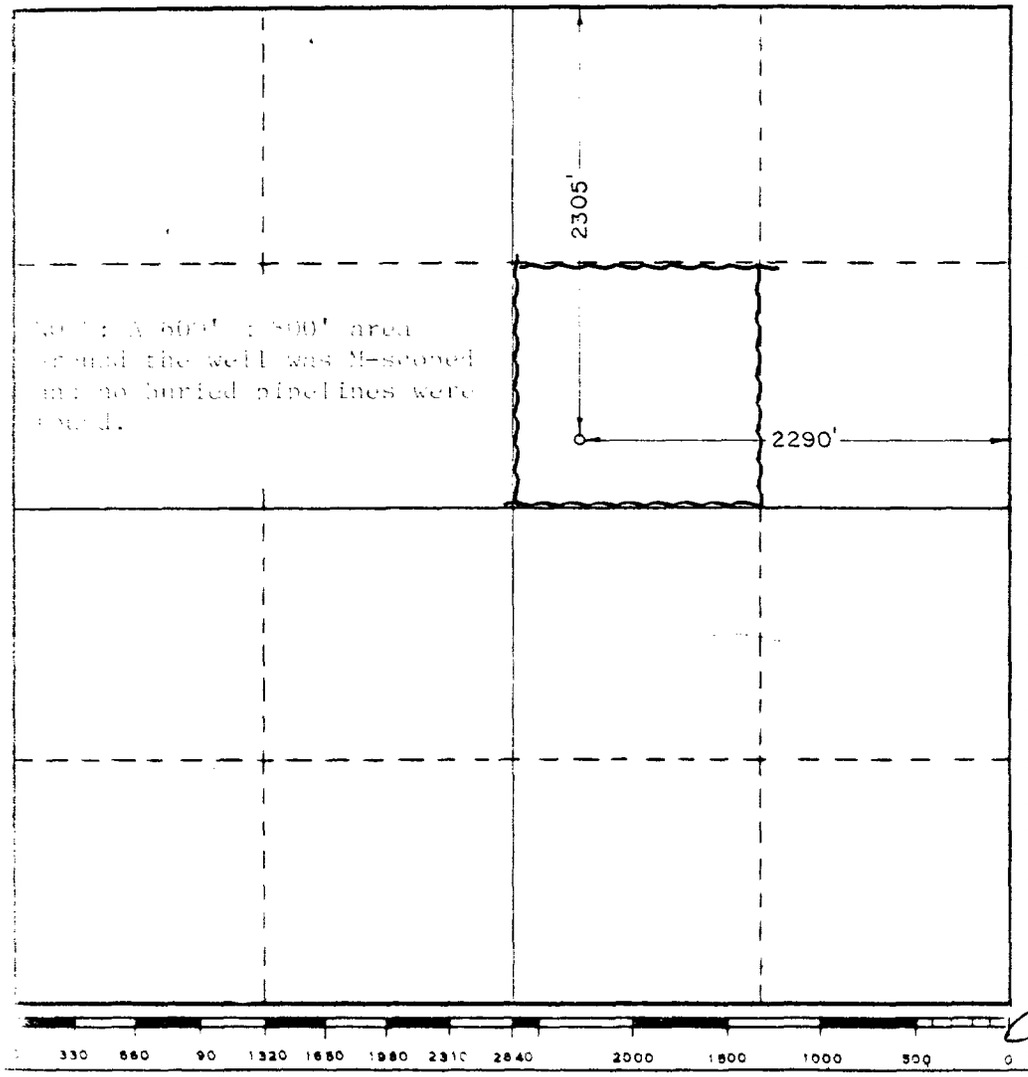
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name: Gary C. Clark
Position: Asst. Admin. Analyst
Company: Amoco Production Company
Date: 1-5-85

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: November 29, 1984

Registered Professional Engineer and/or Land Surveyor

Certificate No JOHN W WEST, 676
RONALD J. EIDSON, 3239

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

December 3, 1985

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

Re: CASE NO. 8867
ORDER NO. R-8087

Applicant:

Amoco Production Company

Dear Sir:

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

Sincerely,

R. L. STAMETS
Director

RLS/fd

Copy of order also sent to:

Hobbs OCD x
Artesia OCD x
Aztec OCD

Other

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

21 November 1985

EXAMINER HEARING

IN THE MATTER OF:

Application of Amoco Production Company for salt water disposal, Chaves County, New Mexico. CASE 8767

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
Energy and Minerals Dept.
Santa Fe, New Mexico 87501

For the Applicant: Willam F. Carr
Attorney at Law
CAMPBELL & BLACK P. A.
P. O. Box 2208
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

E X H I B I T S

MR. STOGNER: Call next Case Number 8767.

MR. TAYLOR: The application of Amoco Production Company for salt water disposal, Chaves County, New Mexico.

MR. CARR: May it please the examiner, my name is William F. Carr, with the law firm Campbell & Black, P. A., of Santa Fe.

We represent Amoco Production Company in this case and have one witness.

MR. STOGNER: Are there any other appearances?

There appear there is none. Will the witness please stand to be sworn.

(Witness sworn.)

STEPHEN P. SCHEFFLER,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place

of residence?

A Stephen P. Scheffler, and I reside in Houston, Texas.

Q Mr. Scheffler, by whom are you employed and in what capacity?

A I'm employed by Amoco Production Company as a petroleum engineer and I work in the Regional Regulatory Affairs Section in Houston.

Q Have you previously testified before this Division and had your credentials as a petroleum engineer accepted and made a matter of record?

A Yes, I have.

Q Are you familiar with the application filed in this case?

A Yes, I am.

Q Are you familiar with the subject acreage?

A Yes, sir.

MR. CARR: Are Mr. Scheffler's qualifications acceptable?

MR. STOGNER: They are.

Q Mr. Scheffler, will you briefly state what Amoco is seeking in this case?

A Amoco is seeking application to dispose of water into the Many Gates Wolfcamp interval in its State

"DQ" No. 3 Well.

On the first exhibit here I've shown the location of the State "DQ" No. 3 Well to be circumscribed by a circle that is one-half mile in radius. That circle --

MR. STOGNER: Please continue, Mr. Scheffler.

A That circle identifies or encompasses all those offsetting leasehold owners to the location and I have also in the next exhibit will identify the surface landowner for that particular -- upon which that particular well is located.

Q Now, Mr. Scheffler, Exhibit Number One shows all the leasehold operators within a half mile of the propsoed disposal well?

A Yes, it does.

Q And the circle on this exhibit identifies the area of review.

A Yes.

Q And was notice of this application provided to all the interest owners within the area of review?

A Yes, it was.

Q And also to the surface owner?

A Yes, it was.

Q And did you provide them with a copy of your C-108?

A Yes.

Q Would you now go to what's been marked as Amoco Exhibit Number One-B, identify that and review it for Mr. Stogner?

A Okay. Exhibit One-B is a copy of the correspondence that we sent to the offset leasehold owners, as well to the surface owner on which the well -- surface owner who owns the land on which the well is located, and also to the Public Land Commissioner.

I have included in this exhibit a copy of each letter and also behind each letter is a copy of the certified mail return receipt which shows that each individual received the letter.

Q Yates, Exxon, and Texaco are the only interest owners within the area of review?

A That is correct.

Q And Mr. Isler is the surface owner?

A Yes.

Q Would you now go to Amoco Exhibit Number Two and explain what this shows?

A Exhibit Number Two is a well location map for the Many Gates Field area. On this exhibit I've identified by the various colored dots the different completion horizons in the area.

The light blue colored dots identify the

location of Many Gates Wolfcamp producing wells and the darker blue dot identifies the location of a Many Gates Abo producing well.

The red dot identifies the location of the State "DQ" No. 3 Well.

The yellow acreage that's outlined is the Amoco-operated acreage in the area. I might point out that Amoco operates two Many Gates Wolfcamp producers, that being the State "DQ" No. 1 and No. 2 up there in the northwest quarter of Section 32.

Q Mr. Scheffler, how does the Abo producing zone indicated by the dark blue dot compare with the producing intervals in the wells which are identified as being in the Many Gates Wolfcamp Pool?

A That particular well is producing from the same correlative intervall as are the Many Gates Wolfcamp producers. The only reason I've noted it as a Many GAtes Wolfcamp -- or Abo producer is because that is the way it's currently carried on the Commission records.

Q What is the status of the proposed salt water disposal well?

A That well is currently shut in and is not producing at all. It has been tested. It has produced nothing but water.

Q Would you now go to Amoco Exhibit Number

Three and review this, please?

A Exhibit Number Three is the Many Gates Wolfcamp Pool well test data for Amoco-operated wells and on this exhibit I've identified the various lease wells that Amoco operates.

The purpose of this exhibit is to note that total anticipated water production from our two wells is about 200 barrels of water per day. This would be the volume of water that we'd be proposing to inject into the disposal well and I might also point out that currently that volume is being trucked approximately 20 miles to the north to a commercial salt water disposal system. It's in the Cado (sic) Field area and it's called the White Ranch Disposal System.

Q Now, Mr. Scheffler, what you'll be proposing -- what you're proposing to do is to reinject Wolfcamp water back into the same interval from which it was originally produced.

A That is correct.

Q Would you now go to Exhibit Four and review that?

A Exhibit Number Four is an injection well data sheet for the State "DQ" No. 3. On this exhibit I have shown under surface casing that the cement behind the surface casing has been circulated to surface and behind the

long string cement, as well, has been circulated to surface.

The total depth of the well is some 7506 feet. We are proposing to inject into the existing Wolfcamp perforations that cover the interval 7272 feet to 7304 feet. As I said, this is a perforated interval.

I'd just point out as well that the underlying oil or gas zone in the area is a gas zone. It is the Morrow gas at approximately 9320 feet. There is no overlying oil or gas zone in the area.

The rest of the information on this particular exhibit I'll be addressing in subsequent exhibits.

Q Would you now go to Exhibit -- and this -- that was Exhibit Four-A -- I will now ask you to direct your attention to Exhibit Four-B and review that.

A Exhibit Four-B is a completion and test summary for Amoco State "DQ" No. 3. In summary, this well was perforated in April of 1985 over the interval 7272 to 7284. That interval was acidized. Subsequent to that acidization (sic) process it was pump tested for some 24 days and there was a total recovery of 3146 barrels of formation water with no oil or gas present. The average daily rate during that period was about 131 barrels of water per day.

Then in June of 1985 the well was perforated, an additional perforated interval was added. It was perforated over the interval 7288 to 7304. It was acid-

ized selectively and then the well was pump tested with both sets of perforations open for another eight days. Total recovery then was some 1,681 barrels of formation water with no oil or gas.

Our conclusion upon finishing the testing of this well was that the Wolfcamp in this particular location is nonproductive of oil or gas.

Q Would you now review for the examiner the current wellbore configuration by referring to your Exhibit Four-C?

A Exhibit Four-C is -- simply identifies the existing wellbore configuration. It shows the current open interval and the setting of the tubing and packer.

Q Would you now go to Exhibit Four-D?

A The only -- Exhibit Four-D is the proposed wellbore configuration for the State "DQ" No. 3, the only difference really being that we show here, we'll be running an internallyl coated, plastic-coated 2-3/8ths inch tubing string to a depth of about 7200 feet. It will be set in a Baker LocSet plastic-coated packer.

Q Will the annular space be filled with fluid?

A Yes, sir.

Q And does Amoco agree to pressure testing of this annular space by placing a gauge on the surface as

is required by the Federal Underground Injection Control Regulations?

A Yes, sir.

Q Will you now go to Exhibit Number Five?

A Exhibit Number Five is an exhibit that identifies all the wells within a two-mile radius of the Amoco-operated State "DQ" No. 3 Well. I've identified the location of that disposal location -- of that well with a red arrow.

I have on this exhibit a one-half mile radius circle and a one-mile radius circle and then a two-mile radius circle circumscribed around that proposed salt water disposal location.

I've identified by the various colored dots the completion horizons for the wells that are noted on this exhibit and I've also highlighted in yellow those wells that are considered to be part of the area of review.

The light blue colored dots are wells, as I have mentioned before, that are completed in the Many Gates Wolfcamp Pool. There's one solid blue dot that identifies the location of the well completed in the Many Gates Abo Pool.

The red dots note the location of wells that are currently abandoned and there is one purple dot that designates the location of a Many Gates Morrow Pool.

I'd like to note the yellow dot in the extreme southwest corner of Section 32 identifies the location of a disposal well that Exxon is currently operating. Disposal is taking place into the San Andres. It's a limited capacity disposal well.

Q Will you now go to your tabular data, Exhibit Number Six, and review this information for Mr. Stogner?

A Exhibit Number Six is a 14-page exhibit that consists of pertinent data on all those wells that are shown on the previous -- that were shown on the previous exhibit to be in the area of review.

I'd like to point out that the first four pages cover pertinent data and have wellbore sketches attached for the two wells that have been plugged over the Many Gates Wolfcamp Pool, that being the Isler Federal No. 2 and the New Mexico "CR" State No. 2, which is a salt water disposal well.

I might point out that there is adequate cement within the wellbores of each of these wells, as well as outside, to allow for adequate protection.

Exhibits Five through Fourteen contain the remaining pertinent data that's put together on the other wells within the area of review.

I'd just like in summary to point out

that in every case there is cement behind the surface casing for all of these wells. Where there is intermediate casing all the wells have cement to surface with the exception of one. That well is found on page eleven. That's the Isler Federal Well No. 1. It has an intermediate casing depth of 3467 feet. The top of the cement behind that intermediate casing is 2267 feet.

In every case the cement behind the long string is at least 2000 feet above the Wolfcamp interval.

I might point out as well that I've included for information purposes a performance data sheet that shows the performance for each of these wells and the cumulative oil and gas production.

Q Will you now refer to your cross section A-A', which is marked Exhibit Four and review this for the Examiner? Exhibit Seven.

A Okay. Exhibit Number Seven is a 4-well log structural cross section. I've shown the line of cross section over in the insert map located on the righthand side of the exhibit.

This cross section contains all those wells within a one-half mile radius area of the proposed disposal well location.

I've hung porosity logs for each well and the wells from which those logs were taken are identified on

the top of each log.

This cross section is hung on a subsea datum of -- at -3000 feet and I've noted the top of the Wolfcamp by the heavy dark line. Immediately below that is the top of the Many Gates pay interval.

I might point out, too, that the perforated intervals that are indicated have completion information noted by each log.

The propose disposal well, the State "DQ" No. 3, as you can see is located in a structurally similar location as that of the State "DQ" No. 1; however, it is lower, or rather -- yes, lower in structure than is the New Mexico "CR" State No. 1 and State "DQ" No. 2 Wells.

The State "DQ" No. 3 Well has tested, as I've mentioned earlier, over the indicated perforated intervals there, some 4700 barrels of water total over a 32-day pump test period.

We don't feel that there would be any adverse affects be injecting re-injectable Wolfcamp water into this well relative to the offsets in the area. As a matter of fact, there may be some benefit from the standpoint of the displacement of reservoir fluid in the direction fo the offset Wolfcamp wells, displacement of hydrocarbons in front of the reservoir fluid that would be re-injected into this State "DQ" No. 3 that may be of benefit to the offsetting

wells.

We have determined that the volume that will be injected over the life of the State "DQ" lease, the volume of water that will be injected, will be such that it should not be sufficient in terms of areal extent to encompass the offset wells I've noted on the cross section.

Q Will you now refer to Exhibit Eight-A and review that for Mr. Stogner?

A Exhibit Eight is injected water volume calculation for the State "DQ" No. 3 proposed salt water disposal well.

On this exhibit I've shown that the remaining life of the State "DQ" lease, that being from July 1st of '85 through July 1st of '95, 1995, is some ten years.

Our anticipated average daily injection volume will be some 200 barrels of water per day and the total injection volume over the life of the well is estimated at 730,000 barrels of water.

Total PhiH value that we have determined to exist within the proposed disposal well was some 4.73 porosity feet.

In terms of defining an equivalent area of displaces reservoir fluid by the injection volume, I have made two assumptions, the first being assuming that 6 percent of the pore volume that I have shown will be movable

pore volume, when I calculate the area that that results in from a standpoint of displaced area, I get about 66 acres with a radius of 960 feet.

Assuming 100 percent movable pore volume I get an area of some 40 acres with a radius of 745 feet.

So in comparing these distances to the distance to the nearest offset Wolfcamp producer, you can see the Amoco well is some 2000 feet away and the Exxon "CR" State No. 1 Well is some 2600 feet away.

Q So you don't anticipate that your injected fluid will reach either of those wellbores within the life of the -- of this particular pool?

A We do not.

Q Would you now go to Exhibit Eight-B?

A Exhibit Eight-B is simply a graphical presentation of the previous data that I've shown. It gives you a relative -- a picture of the relative location of that outer radius of the displaced reservoir fluid following the injection of some 730,000 barrels of fluid into the "DQ" No. 3.

Q Would you now go to Exhibit Nine-A?

A Exhibit Nine-A is a Form C-108 which is required to be filed. I have completed that form and the pertinent data that is required to be filled out I have included in the subsequent exhibits.

Q Will you now go to Exhibit Nine-B?

A Nine-B is -- addresses operational and geological data required under Sections 7, 8, and 9, as defined on the Form C-108.

I will briefly go through this for you. The disposal well operational data required under Sections 7 and 9, we have noted that the average daily injection rate is 200 barrels a day. Our maximum anticipated daily injection rate may be as high as 700 barrels of water a day, the difference there being that we would like to have additional capacity just in case we see some increase in the current Many Gates Wolfcamp Field water production.

The type of injection that we're looking at here will be a closed system. The average injection pressure will be 800 psi. Injection pressure limit that we're requesting for approval is some 1350 psi. This is a pressure limit that will not exceed a gradient of .2 psi per foot of depth to the top of the injection interval of 7272 feet.

As I mentioned, the producing interval comprises the Wolfcamp and the receiving formatio will be the Wolfcamp, as well. The waters, of course, will be compatible.

The proposed stimulation that we will be giving the Wolfcamp interval will be about 3000 gallons of

15 percent HCL acid prior to the injection, initiation of injection.

Geological data as required under Section 8 of the Form C-108 includes the information, geological information about the injection zone, that being the Wolfcamp.

The Wolfcamp is primarily a vugular, crystalline dolomite with some shale and limestone and the Wolfcamp is approximately 750 feet thick.

The "FU" No. 3 only penetrates the upper 270 feet of the Wolfcamp and the top of the Wolfcamp is at -3197 feet subsea.

With regard to underground sources of drinking water, in this area overlying our injection zone there is the Quantenary Alluvium and the Triassic age Santa Rosa formations. These water sources are found between 4000 and 3200 feet above sea level.

Q Would you now go to Exhibit Nine-C?

A Exhibit NIne-C is simply water sample analyses that I have included in this application, the first being that of a water source well, a fresh water well producing from the Ogallala, as well as located within one mile of the existing disposal -- or proposed disposal well.

The second is a water analysis taken from the State "DQ" No. 1 Well. It is an analysis of Wolfcamp producing water.

Q Mr. Scheffler, would you go now to Amoco Exhibit Ten-A, identify this, and review what it shows?

A Exhibit Ten-A is the -- shows the anticipated increase in reserve recovery that we expect by the approval of our being able to use the disposal well as opposed to trucking the water.

Currently our total produced water that is trucked is some 200 barrels of water per day. The economic limit with continued trucking of produced water will be 19 barrels of oil per day, and the reduction in monthly operating expense with the proposed salt water disposal well will be some $6,688 per month.

The economic limit with the proposed salt water disposal well will be 11 barrels of oil per day.

The incremental reserves for the Many Gates Wolfcamp Field that will be realized as a result of reducing the economic limit to 11 barrels of oil per day will be some 18,960 barrels of oil and this is based upon the existing lease decline rate of some 15.4 percent per year.

Q And will you now go to Exhibit Ten-B and review this?

A Exhibit Ten-B is simply the lease decline curve. I've shown on that decline the extrapolation of a 15.4 percent per year decline.

Q Mr. Scheffler, based on your study of this area have you uncovered any evidence of any faults or other hydrologic connections between the proposed injection zone and any underground source of drinking water?

A There are none that I'm aware of.

Q In your opinion will granting this application be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A Yes, sir.

Q Were Exhibits One through Ten, including all sub-parts of these exhibits, prepared by you or compiled under your direction and supervision?

A Yes, they were.

MR. CARR: At this time, Mr. Stogner, we would offer into evidence Exhibits One through Ten, including all sub-parts, and that concludes my direct examination of Mr. Scheffler.

MR. STOGNER: Exhibits One through Ten, inclusive, will be admitted into evidence at this time.

I have no questions for Mr. Scheffler.

Are there any other questions?

If not, he may be excused.

Anything further in Case Number

8767?

MR. CARR: Nothing further.

MR. STOGNER: This case will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 8767, heard by me on 21 November 1985.

Michael E. Stogner, Examiner
Oil Conservation Division