

CASE 4770: Application of AMOCO
PRODUCTION FOR SALT WATER DIS-
POSAL, LEA COUNTY, NEW MEXICO.

Case Number

4770

Application

Transcripts

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
STATE LAND OFFICE
SANTA FE, NEW MEXICO
Wednesday, July 26, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Amoco Production Company
for salt water disposal, Lea County,
New Mexico. Applicant seeks authority
to dispose of produced salt water into the
Yates and Seven Rivers formations in the
open-hole interval from 3484 feet to
3514 feet in its Gorman Federal Well No.
1 located in Unit C of Section 35, Town-
ship 19 South, Range 33 East, East Gem
Yates-Seven Rivers Pool, Lea County,
New Mexico.

Docket No. 16-72
Case No. 4770

BEFORE: DANIEL S. NUTTER, Examiner

TRANSCRIPT OF HEARING

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1082, PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6691, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST, ALBUQUERQUE, NEW MEXICO 87108PROCEEDINGS

MR. HATCH: Case 4770, application of Amoco Production Company for salt water disposal, Lea County, New Mexico.

MR. DANIEL R. CURRENS

having been first duly sworn according to law, upon his oath, testified as follows:

DIRECT EXAMINATION

BY MR. GUY BUELL:

Q Mr. Currens, will you state your complete name, by whom employed and in what capacity and in what location, please, sir?

A Daniel R. Currens. I am employed by Amoco Production Company as a staff engineer in Houston, Texas.

Q This is the application of Amoco to convert our Gorman Federal Number 1 well to salt water disposal and inject salt water in that well, is that correct?

A Yes, sir, that's correct.

Q In connection with your testimony here today, would you look first at what is identified as Exhibit 1? What is that exhibit?

A Exhibit 1 is a map of the area showing the Gorman Federal Number 1 dry hole with a red circle around it. The wells located in Section 35, Township 19 South, Range 33 East, Lea County and just north of that is a producing field

dearnley, meier & mc cormick reporting service

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-0691, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. (EAST), ALBUQUERQUE, NEW MEXICO 87108

- 1 with one well in it, the Yates field with the well
2 located--the only producer in the field is located in
3 the southwest--southeast quarter of the southwest quarter
4 of Section 26 of the same township and range.
- 5 Q What is the name of that producing well for the record,
6 please?
- 7 A The Yates Federal Number 1.
- 8 Q Well, the water, that is not being produced from the Yates
9 Number 1 well will be disposed of in the Gorman Federal
10 Number 1 well?
- 11 A Yes, sir.
- 12 Q Does Exhibit 1 also show that these two wells that we
13 have just been discussing are more or less completely
14 ringed by dry holes?
- 15 A The producing well, Yates Federal is completely ringed
16 by dry holes and the disposal well of course has the
17 Yates Federal producer just north of it, otherwise all
18 dry holes are in the immediate area.
- 19 Q Do you have any other comment on Exhibit 1?
- 20 A No.
- 21 Q Let's look at Exhibit 2. What is that exhibit?
- 22 A Two is a structure map of the area showing the most
23 pertinent things, the well itself contoured on top of the
24 lower Yates carbonate pay on 50 foot contour interval and
25 it shows the Yates Federal Number 1 with a top on that

dearnley, meier & mc cormick legal services

209 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-0691 • ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108

1 structural marker of plus 256 feet and south of that the
2 Gorman well with a structural top of 194 feet. Actually
3 on that exhibit it indicates McKnight drilled the Gorman
4 well but it was drilled by Amoco.

5 Q About how much lower is the Gorman well than the Yates?

6 A Well, let's see.

7 Q 62 is the way I figured.

8 A That sounds right.

9 Q Does the Exhibit 2 also show the structural relationship
10 between the two wells we are discussing and other dry
11 holes in the area?

12 A Yes, it does.

13 Q Do you have any other comments on that exhibit?

14 A No, I don't have anything further on that.

15 Q Let's look at Exhibit 3. What is that one?

16 A This is the Form C-108 that was filed, our application to
17 dispose of salt water for this salt water disposal. I
18 think it is pretty well self-explanatory. It shows the
19 casing program that was used in the well, well location
20 and where it was perforated and how it was plugged and
21 the appropriate names for offset operators and surface
22 owners and so on.

23 Q Is Exhibit 3 in two pieces?

24 A Yes. There is also a second page of it which includes a
25 water analysis, the sample of water caught from the Yates

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6691, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST ALBUQUERQUE, NEW MEXICO 87108

1 Federal Number 1. That simply shows the analysis of that
2 water.

3 Q It isn't real salty but it certainly would qualify under
4 your definition of being salt water?

5 A Yes, 11,000 chlorides.

6 Q Any other comments on Exhibit 3?

7 A I think not.

8 Q Let's turn to Exhibit 4. What is that exhibit?

9 A Exhibit 4 is a schematic drawing of the Gorman Federal
10 Number 1. It shows the casing strings and the well and
11 how the plugs were set and where it was perforated and so
12 on. It also shows the proposal of the tubing string that
13 would be run and the packer set in the well for disposal
14 purposes. Now, this well of course is nine and five-
15 eighths inch casing which was set at 1315 feet and cement
16 was circulated on that. Then the seven inch string of
17 casing was set at 3,051 feet and that casing string was
18 tied with cement back into the nine and five-eighths
19 string. Below that a four and a half inch liner was run
20 and cemented and the cement was circulated on the liner.
21 Initially we tried to complete the well. It was perforated
22 in a number of intervals but we were unsuccessful in a
23 completion attempt in any of those intervals. It was
24 subsequently plugged by a cement plug being set in the
25 well.

dearnley, meier & mc cornick registered service

209 SIMMS BLDG., P.O. BOX 1092, PHONE 241-6691, ALBUQUERQUE, NEW MEXICO 87103
1210 FIRST NATIONAL BANK BLDG., EAST ALBUQUERQUE, NEW MEXICO 87108

- 1 Q We will just drill the plug out if the Commission okays
2 our use of the salt water disposal?
- 3 A Yes, sir. Further we would like to drill out below the
4 old TD perhaps 30 feet or so to increase the capacity of
5 the well to take water. We don't intend to reperforate
6 the perforated intervals or anything like that. It would
7 actually be an open hole injection program.
- 8 Q Let's turn now to Exhibit Number 5. What is that exhibit?
- 9 A Exhibit Number 5 is a log of the Gorman Federal Number 1
10 and I have marked on the log in the bottom portion at
11 about thirty-four ten the top that is shown on the struc-
12 ture that was Exhibit 2 of it plus 194 feet.
- 13 Q Turn now to Exhibit 6, Mr. Currens.
- 14 A Exhibit 6 is a log on the Yates Federal Number 1 and in
15 the bottom portion of it it shows the top of this Yates
16 pay, the correlative marker that on Exhibit 2 only the
17 perforation goes that exists in the well at this time and
18 where it is being produced from.
- 19 Q Do you want to correlate the log of the Gorman well with
20 the Yates well for these gentlemen, Mr. Currens?
- 21 A Well, those two tops that are marked, of course, are the
22 same correlative tops. You will note, however, that the
23 Yates is perforated in the uppermost 40 feet of this pay
24 interval and so the bottom of the perforations in the
25 Yates is 40 feet below the top of that pay interval. What

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6891, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST, ALBUQUERQUE, NEW MEXICO 87108

1 we would be looking at here in this disposal is going
2 down to 74 feet below the top of that interval at the top
3 of the open hole section down to say 104 feet, if we
4 deepen 30 feet below the top of that correlative interval
5 for our disposal. in other words, quite a bit removed
6 from the producing interval.

7 Q Is there a possibility that our disposal interval might
8 not be in communication with the producing interval in
9 the Yates Number 1 well?

10 A It might not even be in the Yates. It might actually
11 be Seven Rivers.

12 Q Is it material whether or not it is in communications
13 with the producing interval in the Yates or not in
14 communication with the producing interval in the Yates?

15 A Well, this is very strong water and dry field that we
16 have here and there is considerable natural water inflec-
17 tion. The bottom-hole pressure is about the same as it
18 was initially at around 2,000 pounds or so. I can't see
19 putting the water you produce back into a water dry field.

20 Q If it doesn't go back in--

21 A It is not going to make much difference either.

22 Q Would you briefly comment on the anticipated disposal
23 volumes that we see now and perhaps in the future and the
24 anticipated pressure injection we encounter?

25 A Well, I don't think we will have any injection pressure

dearnley, meier & mc cornick reporting services

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6691, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG., EAST ALBUQUERQUE, NEW MEXICO 87108

1 at least in any early stage of this thing. Injection will
2 probably be on a gravity throughout its life. The last
3 test we had on this Yates Federal Number 1 was very small
4 amount of water. It was making 175 barrels of oil and
5 3 barrels of water and that is about the volume, so I
6 would anticipate one to three barrels a day for some
7 period of time right now.

8 Q Is it unusual, Mr. Currens, to go to the expense to
9 convert a well to disposal for that small volume of water?

10 A We are a water dry field. You have got to expect water
11 as a cumulative increases and we believe we will get a
12 payout on this as opposed to any alternate.

13 Q Now, this is somewhat unusual. We are producing the water
14 on one of these and disposing it onto a well in another
15 lease. Have any special arrangements been made with the
16 owners of the lease where the disposal well is injected?

17 A The Gorman well is on Federal acreage. We have applied
18 for a business lease for disposal purposes. The U.S.G.S.
19 has advised us that the business lease will be issued if
20 we have a disposal order issued.

21 Q Do you have any other comments you would like to make,
22 Mr. Currens?

23 A No.

24 MR. BUELL: That is all we have by way of direct.

25 I would like to formerly offer Exhibits 1 through 6.

dearnley, meier & mc cornick recording service

209 SIMMS BLDG. P.O. BOX 1092 PHONE 243-6691 ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST ALBUQUERQUE, NEW MEXICO 87108

1 MR. NUTTER: Exhibits 1 through 6 will be admitted.
2 Amoco Exhibits 1 through 6 will be admitted into evidence.

3 Did you have any further questions?

4 MR. BUELL: That's all.

5 MR. NUTTER: Mr. Currens, I note on Exhibit Number 4
6 that you did mention on the exhibit, although you didn't in
7 your testimony, that you proposed to install two and three-
8 eighths internally coated tubing on a packer.

9 MR. CURRENS: Yes, sir. We would be using a tension
10 packer and we would load--the annulus is between the tubing
11 and the casing with an inhibited fluid to prevent any corrosion.

12 MR. NUTTER: It also appears that the cement on seven
13 inch pipe came back up into the surface pipe?

14 MR. CURRENS: Yes, sir. The top of the cement by a
15 temperature survey on that well was 475 feet which was getting
16 close to 900 feet on up into the surface pipe.

17 MR. NUTTER: So apparently the well is well cased
18 and well cemented and shouldn't present any problem to the
19 fresh water in the area?

20 MR. CURRENS: I believe they are well protected.

21 MR. NUTTER: The present total depth is thirty-four
22 eighty-four; is that correct?

23 MR. CURRENS: Yes, sir.

24 MR. NUTTER: You will deepen it an additional 30
25 feet?

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6691, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG., EAST, ALBUQUERQUE, NEW MEXICO 87108

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

MR. CURRENS: A nominal 30 feet. It might be 35 or 25.

MR. NUTTER: So that would be your disposal zone, then?

MR. CURRENS: Yes, sir. The open hole interval from thirty-four eighty-four to that TD which we will just call thirty-five fourteen.

MR. NUTTER: Are there any further questions of Mr. Currens? He may be excused. Do you have anything further, Mr. Buell?

MR. BUELL: No, sir, I do not.

MR. NUTTER: Does anyone have anything they wish to offer in case 4770?

We will take the case under advisement and call case 4774.

* * * * *

dearnley, meier & mc cormick reporting service

209 SIMMS BLDG., P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108I N D E XWITNESSPAGE

MR. DANIEL R. CURRENS

Direct Examination by Mr. Guy Buell

3

E X H I B I T SPAGEExhibit 1 -
Map

10

Exhibit 2 -
Structure map

10

Exhibit 3 -
Form C-108

10

Exhibit 4 -
Drawing of Gorman Federal Number 1

10

Exhibit 5 -
Log of Gorman Federal Number 1

10

Exhibit 6 -
Log of Yates Federal Number 1

10

dearnley, meier & mc cormick

200 SIMMS BLDG. • P.O. BOX 1092 • PHONE: 243-6691 • ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. • EAST • ALBUQUERQUE, NEW MEXICO 87104

1 STATE OF NEW MEXICO)
2 : ss.
3 COUNTY OF BERNALILLO)

4 I, MARCIA J. HUGHES, Court Reporter, do hereby certify
5 that the above and foregoing pages are a true and correct
6 transcript of the proceedings had before the New Mexico Oil
7 Conservation Commission on Wednesday, July 26, 1972.

8 *Marcia J. Hughes*
9

10
11
12
13
14
15
16
17
18
19
20
21
22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
24 the Frontier hearing of Case No. 4770,
25 heard by me on 7/26, 1972.

John, Examiner
New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

**GOVERNOR
BRUCE KING
CHAIRMAN**

**LAND COMMISSIONER
ALEX J. ARMISTO
MEMBER**

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

August 8, 1972

Mr. Guy Buell
Amoco Production Company
Post Office Box 3092
Houston, Texas 77001

Re: Case No. 4770

Order No. R-4356

Applicant:

Amoco Production Company

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.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x

Artesia OCC

Aztec OCC

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. 4770
Order No. R-4356

APPLICATION OF AMOCO PRODUCTION
COMPANY FOR SALT WATER DISPOSAL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 26, 1972, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 7th day of August, 1972, 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, Amoco Production Company, is the owner and operator of the Gorman Federal Well No. 1, located in Unit C of Section 35, Township 19 South, Range 33 East, NMPM, East Gem-Yates Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Yates and Seven Rivers formations, with injection into the open-hole interval from approximately 3484 feet to 3514 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at approximately 3300 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

-2-
Case No. 4770
Order No. R-4356

IT IS THEREFORE ORDERED:

(1) That the applicant, Amoco Production Company, is hereby authorized to utilize its Gorman Federal Well No. 1, located in Unit C of Section 35, Township 19 South, Range 33 East, NMPM, East Gem-Yates Pool, Lea County, New Mexico, to dispose of produced salt water into the Yates and Seven Rivers formations, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 3300 feet, with injection into the open-hole interval from approximately 3484 feet to 3514 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) 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



Bruce King
BRUCE KING, Chairman

Alex J. Armijo
ALEX J. ARMILJO, Member

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

S E A L

dr/

(Case 4753 continued from page 1)

approval of an 80-acre non-standard oil proration unit in the East Shoe Bar-Devonian Pool comprising the NW/4 SW/4 and the SW/4 NW/4 of Section 29, Township 16 South, Range 36 East, Lea County, New Mexico, to be dedicated to a well to be drilled 1980 feet from the South line and 560 feet from the West line of said Section 29.

CASE 4769: Application of Gulf Oil Corporation for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority for the dual completion (conventional) of its J. R. Holt (NCT-A) Well No. 4 to be located 1980 feet from the South line and 2080 feet from the East line of Section 16, Township 24 South, Range 37 East, Lea County, New Mexico, in such a manner as to produce oil from the Fowler-Upper Yeso and Fowler-Devonian Pools through parallel strings of tubing.

CASE 4770: Application of Amoco Production 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 Yates and Seven Rivers formations in the open-hole interval from 3484 feet to 3514 feet in its Gorman Federal Well No. 1 located in Unit C of Section 35, Township 19 South, Range 33 East, East Gem Yates-Seven Rivers Pool, Lea County, New Mexico.

CASE 4774: Application of Amoco Production Company for a pressure maintenance project expansion, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its Cato Baskett Pressure Maintenance Project, Cato-San Andres Pool, Chaves County, New Mexico, by the conversion to water injection of four additional wells located in Township 8 South, Range 30 East, as follows:

Baskett "D" Well No. 3 - Unit O - Section 11
Baskett "B" Well No. 2 - Unit C - Section 11
Wasley Well No. 1 - Unit C - Section 14
Wasley Well No. 3 - Unit A - Section 14

Applicant further seeks a procedure whereby additional injection wells and expansion of the project area may be approved without the necessity of notice and hearing.

CASE 4775: Application of Continental Oil Company for amendment of special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks amendment of the special rules and regulations governing the Blinebry Pool, Lea County, New Mexico, to provide for annual bottom-hole pressure, gas-oil ratio, and gas-liquid tests in the pool. Applicant further seeks the designation of oil areas and gas areas in the pool with allowables within each area equalized on a per-acre basis and total withdrawals from the gas area to be volumetrically equivalent to the total withdrawals from the oil area.

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Amoco Production Company		ADDRESS P. O. Box 68, Hobbs, New Mexico, 88240	
LEASE NAME Gorman Federal	WELL NO. 1	FIELD East Gam Yates 7 Rivers	COUNTY Lea
LOCATION UNIT LETTER <u>G</u> WELL IS LOCATED <u>330'</u> FEET FROM THE <u>North</u> LINE AND <u>1980'</u> FEET FROM THE <u>West</u> LINE, SECTION <u>35</u> TOWNSHIP <u>19-8</u> RANGE <u>33-E</u> NMPM.			

CASING AND TUBING DATA					
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	9-5/8	1315	460	Circ	-
Long String	7"	3015	350	475	Tamp Survey
Liner	4-1/2"	2921-3484'	100	Circ 30 ex	-
TUBING	Internally Coated	2-3/8"	3300'	NAME, MODEL AND DEPTH OF TUBING PACKER Johnston S-1 Tension pkr at 3300'	
NAME OF PROPOSED INJECTION FORMATION Yates - Seven Rivers			TOP OF FORMATION 3118' Yates		BOTTOM OF FORMATION Not available
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLE? Open Hole		PROPOSED INTERVAL(S) OF INJECTION 3484' - 3514'	
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No		IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Drilled for oil in Yates Formation - but dry			HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? yes
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH Perfs 3350-3400', 01,12,18,23-30,37,42-45. Cement plug from 3250' to 3447'.					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA 400'		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA None		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA None	
ANTICIPATED DAILY INJECTION VOLUME (BBLS.)	MINIMUM 15	MAXIMUM 350	OPEN OR CLOSED TYPE SYSTEM Open	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Gravity	APPROX. PRESSURE (PSI) -
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -			WATER TO BE DISPOSED OF Yes	NATURAL WATER IN DISPOSAL ZONE Yes	ARE WATER ANALYSES ATTACHED? Yes
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Mark Smith, Box 1296, Lovington, New Mexico, 88260					
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL James D. Craig, 5790 Fair Avenue, Englewood, Colorado W. Feick, Jr. Lambert Road, New Canaan, Connecticut Allied Chemical - Union Texas Petroleum, 1300 Wilco Building, Midland, Texas					
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? SURFACE OWNER Yes		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL Yes		THE NEW MEXICO STATE ENGINEER No	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)? PLAT OF AREA Yes		ELECTRICAL LOG Yes		DIAGNOSTIC SKETCH OF WELL Yes	

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

(Signature)

Area Superintendent

(Title)

June 23, 1972

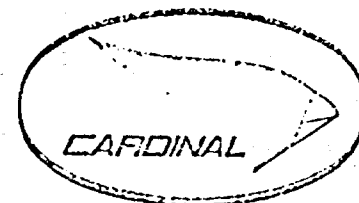
(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

Ex3

Cardinal

ANALYTICAL SERVICE LABORATORY

Date 5-11-72Report No. Dist. 11.1Company Amoco

County

Lease Bates Fed.

Address

Field

Well No. # 1

Attention

Formation

Depth

Recent Treatments

Date
SampledSample Well Head
Source

WATER ANALYSIS

(Reported as mg per Liter)

Specific Gravity	1.010	76 Degrees	pH	7.2
Chloride	11,000		Calcium	920
Bicarbonate	1,444		Magnesium	408
Sulfate	750		Total Iron	Nil
Sulfide	Heavy		Sodium (Calc.)	6,210
Total Hardness (as Ca CO ₃)	14,000		Total Dissolved Solids (Calc.)	20,732
Resistivity	0.43	Ohm Meters @ 76 Degrees		

Remarks:

REPRESENTATIVE ANALYSIS
OF WATER TO BE DISPOSED OF

Analyst Odessa LabCardinal Representative Mike Smith



ENGINEERING CHART

FILE

APP'D

DATE

BY

SUBJECT: GORMAN TTD, No. 1 (DPL'S BY AMOCO-1918)

RE-ENTRY & COMP AS SWD WITH

LOCATION: 330' ENLX 1980' FULL, SEC 35, T-19-S,
R-33-E, LEA COUNTY, N.M.

PNA PROCEDURE:

10 SX PLUG
@ SURFACE

ELEV. 3624 RDB

T CMT 475' (TEMP SURVEY)

9 5/8" CSA 1315 X 460 SX. CMT CIRC.

CEMENT PLUG
FROM 1290' TO 3000'EXAMINER NUTTER
CONSERVATION COMMISSION

EXHIBIT NO.

4770

Amoco

Date

AMOCO PROPOSES TO DRILL OUT
THE CEMENT PLUGS AND 30' OF
NEW HOLE (3484' TO 3514'), INSTALL
2 3/8" INTERNALLY COATED TUBING
WITH A TENSION-TYPE PACKER AT
3300', LOAD THE ANNULUS WITH
INHIBITED FLUID, AND DISPOSE
OF PRODUCED WATER BY GRAVITY
IN THE OPEN HOLE SECTION.

CEMENT PLUG
FROM 3250' TO 3447'

7" (17+20") CSA 305' X 350 SX.

PERFS: 3350-3400, 3401, 3412, 3413,
3423-30, 3437, 3442-45 X 2 3/8"

TD 3484'

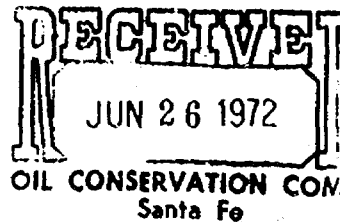
4 1/2" (9.5") LINER FROM 2921' TO 3484'.
CMT X 100 SX. CIRC 30 SX.

RECOMMENDATION:

DPL OUT CMT PLUGS
X NEW HOLE TO TD OF
APPROX. 3514'PROPOSED TO
3514'ATTACHMENT III
EX 4



June 23, 1972



Amoco Production Company
Post Office Box 68
Hobbs, New Mexico, 88240

Case 4770

File: VES-501.61-148

Re: Salt Water Disposal
East Gem Yates Field

Secretary Director
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico, 87501

United States Geological Survey
P. O. Box 1857
Roswell, New Mexico, 88201
Attn: Mr. N. O. Frederick

Gentlemen:

Amoco Production Company requests approval to dispose of produced water into the Gorman Federal No. 1, a plugged and abandoned well located at 330' FNL and 1980' FWL of Section 35, T-19S, R-33E, Lea County, New Mexico. The subject well was originally drilled as a development well in the East Gem Yates Seven Rivers Field, but was not oil productive in the producing horizon.

We propose to dispose of produced water from the Bate Federal Well No. 1 into the Seven Rivers reef section in the Gorman Federal No. 1. In support of this application, attached are the following:

1. NMOCC Form C-108, "Application to Dispose of Salt Water by Injection into a Porous Formation".
2. A plat of the subject area showing the proposed injection well and all other known wells within a two-mile radius.
3. A log of the proposed injection well.
4. A diagrammatic sketch of the proposed injection well.
5. A water analysis of the produced water.

DOCKET MAILED

Date 7-14-72

6. A mailing list indicating that the surface owner and offset lease holders have been furnished a copy of this application.

Amoco plans to drill out the cement plugs as indicated on the diagrammatic sketch of the Gorman Federal No. 1, set 2-3/8" internally coated tubing with a tension-type packer at approximately 3300', and load the tubing-casing annulus with inhibited fluid. Injection under gravity into the open-hole section from 3483' to 3514' is anticipated.

Yours very truly,



V. E. STALEY
Area Superintendent

Attachments

MAILING LIST

New Mexico Oil Conservation Commission (3)
P. O. Box 2088
Santa Fe, New Mexico

United States Geological Survey (2)
P. O. Box 1857
Roswell, New Mexico
Attn: Mr. N. O. Frederick

U. S. Department of the Interior (2)
Bureau of Land Management
P. O. Box 1397
Roswell, New Mexico, 88201

Mr. Mark Smith
P. O. Box 1296
Lovington, New Mexico, 88260

Mr. James D. Craig
5790 Fair Avenue
Englewood, Colorado

Mr. W. Feick, Jr
Lambert Road
New Canaan, Connecticut

Allied Chemical - Union Texas Petroleum
1300 Wilco Building
Midland, Texas

Mr. J. L. Hoyt, Jr.
Amoco Production Company
Houston, Texas

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Amoco Production Company		ADDRESS P. O. Box 68, Hobbs, New Mexico, 88240			
LEASE NAME Gorman Federal	WELL NO. 1	FIELD East Gem Yates 7 Rivers	COUNTY Lea		
LOCATION UNIT LETTER C ; WELL IS LOCATED 330' FEET FROM THE North LINE AND 1980' FEET FROM THE West LINE, SECTION 35 TOWNSHIP 19-S RANGE 33-E NMPM.					
CASING AND TUBING DATA					
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	9-5/8	1315	460	Circ	-
INTERMEDIATE Long String	7"	3015	350	475	Tamp Survey
LONG STRING Liner	4-1/2"	2921-3484'	100	Circ 30 sk	-
TUBING Internally Coated	2-3/8"	3300'	NAME, MODEL AND DEPTH OF TUBING PACKER Johnston S-1 Tension pkr at 3300'		
NAME OF PROPOSED INJECTION FORMATION Yates - Seven Rivers		TOP OF FORMATION 3118' Yates		BOTTOM OF FORMATION Not available	
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLE? Open Hole		PROPOSED INTERVAL(S) OF INJECTION 3484' - 3514'	
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Drilled for oil in Yates Formation - but dry			HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? yes	
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH Perfs 3350-3400', 01,12,18,23-30,37,42-45. Cement plug from 3250' to 3447'.					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA 400'		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA None		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA None	
ANTICIPATED DAILY INJECTION VOLUME (BBLS.) 15	MINIMUM 15	MAXIMUM 350	OPEN OR CLOSED TYPE SYSTEM Open	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Gravity	APPROX. PRESSURE (PSI) -
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE - Yes			WATER TO BE DISPOSED OF Yes	NATURAL WATER IN DISPOSAL ZONE Yes	ARE WATER ANALYSES ATTACHED? Yes
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Mark Smith, Box 1296, Lovington, New Mexico, 88260					
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL James D. Craig, 5790 Fair Avenue, Englewood, Colorado W. Feick, Jr. Lambert Road, New Canaan, Connecticut Allied Chemical - Union Texas Petroleum, 1300 Wilco Building, Midland, Texas					
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? Yes		SURFACE OWNER Yes		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL Yes	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) Yes		PLAN OF AREA Yes		ELECTRICAL LOG Yes	
				THE NEW MEXICO STATE ENGINEER No	
				DIAGRAMMATIC SKETCH OF WELL Yes	

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

Area Superintendent

June 23, 1972

(Signature)

(Title)

(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

SUBJECT GORMAN TTD, No. 1 (DRI'S BY AMOCO-1986)

RE-ENTER & COMP AS SWD WITH

LOCATION: 330' ENLX 1980' WUL, SEC 35, T-19-S,
R-33-E, LEA COUNTY, N.M.

PXA PROCEDURE:



10 SX PLUG
@ SURFACE

ELEV. 3604 RDB

TCMT 475' (TEMP SURVEY)

9 5/8" CSA 1315 X 460 SX. CMT CIRC.

CEMENT PLUG
FROM 1290' TO 3000'

AMOCO PROPOSES TO DRILL OUT
THE CEMENT PLUGS AND 30' OF
NEW HOLE (3484' TO 3514'), INSTALL
2 3/8" INTERNALLY COATED TUBING
WITH A TENSION-TYPE PACKER AT
3300', LOAD THE ANNULUS WITH
INHIBITED FLUID, AND DISPOSE
OF PRODUCED WATER BY GRAVITY
IN THE OPEN-HOLE SECTION.

CEMENT PLUG
FROM 3250' TO 3442'

7" (17+20") CSA 3051 X 350 SX.

PERFS: 3350-3400, 3409, 3412, 3418,
3423-30, 3437, 3442-45 X 2 JSPT

TD 3484'

4 1/2" (9.5") LINER FROM 2921' TO 3484'.
CMTX 100 SX. CIRC 30 SX.

RECOMMENDATION:

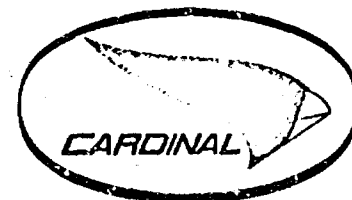
DRILL OUT CMT PLUGS
X NEW HOLE TO TD OF
APPROX. 3514'

PROPOSED TO
3514'

ATTACHMENT III

Cardinal

ANALYTICAL SERVICE LABORATORY

Date 5-11-72Report No. Dist. No.Company Amoco

County

Lease Baton Fed.

Address

Field

Well No. # 1

Attention

Formation

Depth

Recent Treatments

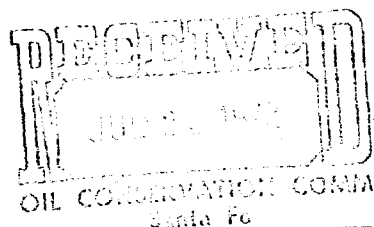
Date
SampledSample Well Head
Source**WATER ANALYSIS**

(Reported as mg per Liter)

Specific Gravity	1.010	76 Degrees	pH	7.2
Chloride	11,000		Calcium	920
Bicarbonate	1,444		Magnesium	408
Sulfate	750		Total Iron	Nil
Sulfide	Heavy		Sodium (Calc.)	6,210
Total Hardness (as Ca CO ₃)	14,000		Total Dissolved Solids (Calc.)	20,732
Resistivity	0.43	Ohm Meters @ 76 Degrees		

Remarks: REPRESENTATIVE ANALYSIS
OF WATER TO BE DISPOSED OF

Case #770Analyst Odessa LabCardinal Representative Mike Smith



BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION)
OF AMOCO PRODUCTION COMPANY FOR)
SALT WATER DISPOSAL, EAST GEM) Case No. 4770
YATES-SEVEN RIVERS POOL, LEA)
COUNTY, NEW MEXICO.)

ENTRY OF APPEARANCE

The undersigned Atwood, Malone, Mann & Cooter of
Roswell, New Mexico, hereby enter their appearance herein
for the Applicant, Amoco Production Company, with Guy
Buell, Esquire, of Houston, Texas.

ATWOOD, MALONE, MANN & COOTER

BY Charles Malone
Attorneys for Amoco Production
Company
P. O. Drawer 700
Roswell, New Mexico 88201

DRAFT

GMH/dr

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. 4770

Order No. R-4356

APPLICATION OF AMOCO PRODUCTION
COMPANY FOR SALT WATER DISPOSAL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 26, 1972,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of _____, 1972, 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, Amoco Production Company,
is the owner and operator of the Gorman Federal Well No. 1 ✓
located in Unit C of Section 35, Township 19 South, Range
33 East, NMPM, East Gem ^{Yates} ~~Seven Rivers~~ Pool, Lea
County, New Mexico.

(3) That the applicant proposes to utilize said well to
dispose of produced salt water into the Yates and Seven Rivers
formation§ with injection into the open-hole interval
from approximately 3484 feet to 3514 feet.

(4) That the injection should be accomplished through
2 7/8-inch plastic-lined tubing installed in a packer set at

CASE No. _____

approximately 3300 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Amoco Production Company, is hereby authorized to utilize its Gorman Federal Well No. 1 located in Unit C of Section 35, Township 19 South, Range 33 East, NMPM, East Gem-Yates, Seven Rivers Pool, Lea County, New Mexico, to dispose of produced salt water into the Yates and Seven Rivers formation, injection to be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 3300 feet, with injection into the open-hole interval from approximately 3484 feet to 3514 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus or the annulus left open at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) 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.