CASE 7009: AMOCO PRODUCTION COMPANY FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO

CASE NO.

7009

Application,

Transcripts,

Small Exhibits,

ETC.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

September 12, 1980

Mr. Clyde Mote, Attorney
Amoco Production Company
P. O. Box 3092
Houston, Texas 77001

Re: CASE NO. ~~7089~~
ORDER NO. ~~R-6461~~

Applicant:

~~Amoco Production Company~~

Dear Sir:

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

Yours very truly,

JOE D. RAMEY
Director

JDR/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

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

CASE NO. 7009
Order No. R-6461

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

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 20, 1980, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 10th day of September, 1980, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Amoco Production Company, is the owner and operator of the State "E" Tract 18 Well No. 22, located in Unit G of Section 2, Township 17 South, Range 36 East, NMPM, Lovington-Abo Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Abo formation, with injection into the open hole interval from approximately 8330 feet to 9000 feet.

(4) That the injection should be accomplished through 3 1/2-inch plastic lined tubing installed in a packer set at approximately 8300 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge or approved leak detection device should be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(5) That prior to injection the applicant should recement the 5 1/2-inch casing in said well from a depth of approximately 5400 feet to 5000 feet, obtain a formation water analysis at the injection interval, and file such analysis with the Director of the Division.

(6) That the injection well or system should be equipped with a pressure limiting switch or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1650 psi.

(7) That the Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the Abo formation.

(8) That the operator should notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.

(9) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(10) 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 State "E" Tract 18 Well No. 22, located in Unit G of Section 2, Township 17 South, Range 36 East, NMPM, Lovington-Abo Pool, Lea County, New Mexico, to dispose of produced salt water into the Abo formation, injection to be accomplished through 3 1/2-inch tubing installed in a packer set at approximately 8300 feet, with injection into the open hole interval from approximately 8330 feet to 9000 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 shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

PROVIDED FURTHER, that prior to injection the applicant shall recement the 5 1/2-inch casing in said well from a depth of approximately 5400 feet to 5000 feet, obtain a formation water analysis at the injection interval, and file such analysis with the Director of the Division.

(2) That the injection well or system shall be equipped with a pressure limiting switch or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1650 psi.

(3) That the Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Abo formation.

(4) That the operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.

(5) That the operator shall immediately notify the supervisor of the Division's Hobbs district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

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

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO
20 August 1980

EXAMINER HEARING

IN THE MATTER OF:

Application of Amoco Production Company for salt water disposal, Lea County, New Mexico. CASE 7009

BEFORE: Richard L. Stamets

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: Clyde A. Mote, Esq.
Amoco Production Company
500 Jefferson Bldg.
Houston, Texas 77001

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I N D E X

E X H I B I T S

MR. STAMETS: At this time we will call, then, Case 7009.

MR. PADILLA: Application of Amoco Production Company for salt water disposal, Lea County, New Mexico.

MR. MOTE: Mr. Examiner, I'm Clyde Mote, attorney, representing Amoco Production Company, in association with Atwood and Malone.

I have one witness.

(Witness sworn.)

W. MIKE BROWN

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

DIRECT EXAMINATION

BY MR. MOTE:

Q. Would you please state your name, by whom employed, in what capacity, and what location?

A. Yes. My name is W. Michael Brown. I'm employed by Amoco Production Company in the Houston Regional Office as a Staff Petroleum Engineer, Senior Grade.

Q. Have you previously testified before the Oil Conservation Division and your qualifications as an ex-

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pert petroleum engineer been accepted?

A. Yes.

Q. You'll be asked to testify concerning several exhibits. Were all of these exhibits either prepared by you or under your supervision and direction?

A. Yes, they were.

Q. Please turn to your first exhibit and, if you would, please explain to the Examiner the reason for the two circles drawn on this map.

A. The -- first of all, I'd like to note that the well in question, our State "E" Tract 18 Well No. 22 is designated by the red arrow and is the center of both the circles. The inner circle has a half mile radius; the outer circle is a 2-mile radius.

We've tried to show by this map all producing horizons within the 2-mile radius.

Q. How many producing horizons are within this 2-mile radius?

A. There are a total of six. The three main horizons are the San Andres, the Paddock, and the Abo. There is one Queen well, one Yates well, and three Devonian producers.

Q. How many existing salt water disposal wells in the Abo?

A. At present there are four. There are

three in Section 2 and one in the southeast quarter of Section 1, being the Araho salt water disposal well No. 1.

Q. And are you either at or near capacity in these wells?

A. Yes. At present the three wells in Section 2 are at capacity. The Araho well in Section 1 has an additional 2000 barrels a day capacity.

Q. Why do you need more salt water disposal capacity?

A. At present we're installing submersible pumps on our wells on the State "E" Tract 18 lease. If you'll refer to Exhibit Two, to show we have at present installed submersible pumps in our Wells Nos. 15, 17, and 19.

We propose, once we have additional salt water disposal capacity, to install additional submersible pumps on Wells Nos. 18, 20, and 23, and also return Well No. 16 to production, which is currently shut-in.

Q. Your Exhibit Number Two, I believe it shows both oil and water produced from each one of the wells?

A. Yes, it does.

Q. And does it show the need for the additional 4370 barrels of water per day?

A. Yes, with all wells on submersible pump and with the results that we anticipate, yes.

Q. All right. Turn to your Exhibit Number

Three, if you would. I believe this is a form which is your application to dispose of salt water by injection which is already on file with the Commission, is this correct?

A. Yes, Form C-108.

Q. All right. What in particular do you wish to point out on this exhibit to the Examiner?

A. I'd like to point out on this exhibit that we plan to inject water into the Abo formation through an open hole completion at a depth of 8330 to 9000 feet. We would have a maximum surface pressure of 1650 pounds and propose to inject between six and 10,000 barrels a day.

Q. Will this be a closed system?

A. Yes, it will.

Q. I believe you have attached to that exhibit a water analysis, do you not?

A. Yes.

Q. And what does it show the water to be?

A. Well, this analysis was taken from our well No. 15, which is an Abo producer, and shows the water that we plan to inject to be mineralized to an extent to be not suitable for generalized use.

Q. All right, get your Exhibits Four and Five out together so we can discuss both of them at the same time.

I believe your Exhibit Number Four is a wellbore schematic showing the current wellbore as it exists

now and the wellbore schematic showing proposed wellbore is Exhibit Number Five, is that correct?

A. That's correct.

Q. All right. Please explain the procedure you intend to use to make your conversion.

A. We plan to enter Well No. 22 and squeeze the present Abo perforations at 8292 to 8316. We would then go up-hole and perforate pipe at 5000 feet and displace 450 sacks of cement to raise our cement top from the current 5400 feet to 4150 feet to completely put cement past the San Andres formation.

We will run a temperature survey to confirm where the top of cement is after this operation.

We'll then drill out the cast iron retainer and the cement at the base of the hole and drill to a total depth of 9000 feet. At that time we'll install a packer and tubing and inject water through a 3-1/2 inch plastic-coated tubing into the open hole between 8330 and 9000 feet.

Q. All right. Turn to your Exhibit Number Six, if you will. I believe this is a log of the proposed well to be converted to injection.

A. Yes, Exhibit Number Six is a gamma ray neutron log on our State "E" Tract 13 Well No. 22. Shown on the log are the various formation tops and the casing seats.

Q. All right, turn to your Exhibit Number

Seven, if you would. I believe this is the completion and casing data of all wells within half a mile of the injection well, is that correct, the proposed injection well?

A. Yes, it gives the completion data on all wells within a half mile radius of the subject well, and shows that nine wells have penetrated the Abo formation within this area. Of that nine, two are currently Paddock water injection wells; three are Abo salt water disposal wells; and four are Abo producers.

Q. Does it list the completion and casing data for all the wells?

A. Yes, it does.

Q. And what is the current status of all these wells?

A. Well, our State "E" Tract 18 Wells Nos. 18, 19, 20, and 23 are currently Abo producers.

State "E" Tract 18 Well No. 21 is a Abo salt water disposal well.

The Araho, Incorporated, State "WD" No. 2 is an Abo salt water disposal well.

Getty Lovington-Paddock Unit Water Injection Well No. 2 is a Paddock water injection well, as is the Phillips Lovington No. 2.

The Rice Engineering State "WD" No. 1 is an Abo salt water disposal well.

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Q. This shows, then, that all four Abo producing wells within a half mile radius are operated by Amoco Production Company?

A. That is correct.

MR. MOTE: Mr. Examiner, we offer all these exhibits into evidence.

MR. STAMETS: These exhibits will be admitted.

MR. MOTE: That concludes our case.

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Brown, I believe you indicated that 1650 pounds was your maximum --

A. Yes, sir.

Q. -- expected pressure.

A. Yes, sir, correct.

Q. Do you have any water analysis or analyses vailable on this Lower Abo section?

A. We think that the water taken from the 15 is the same as what will be encountered at the injection interval.

Q. What you will be re-injecting, then, is all Abo water.

A. That's correct.

Q You don't have any proof, then, that at this point there is no difference between the upper zone Abo water and the lower zone Abo water?

A No, sir. No, we have not taken any analysis that I've seen in our well at the interval in which we plan to inject, but I do think that it is the same water.

Q Could this be done fairly easily when you drill the well deeper?

A Oh, yes, sir, quite easily.

Q Looking at Exhibit Number Seven, it would appear that essentially every well which is -- has penetrated this zone, injection interval, is cemented well above the zone.

A Yes, sir.

Q And you have no plugged and abandoned wells in this area.

A That's correct.

MR. STAMETS: Any other questions of the witness? Oh, let me look at Exhibit Five again.

Q I presume you will have the annular space between the injection tubing and the casing loaded with an inhibited fluid?

A Yes, sir, we will.

Q And some sort of a testing device at the surface to insure that you don't have a leak in the tubing or packer --

A. Yes, sir.

MR. STAMETS: Any other questions of the witness? He may be excused.

Anything further in this case?

The case will be taken under advisement.

(Hearing concluded.)

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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 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.

_____

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. _____, heard by me on _____ 19____.

_____, Examiner
Oil Conservation Division

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
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MR. STAMETS: Any other questions of the witness? He may be excused.

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The case will be taken under advisement.

(Hearing concluded.)

SALLY W. BOYD, C.S.R.
Rt. 1 Box 193-B
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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 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 C.S.R.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 7009, heard by me on 8/20 1980.

Richard L. Stamets, Examiner
Oil Conservation Division

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AMOCO PRODUCTION CO.

STATE "E" TRACT 18 LEASE

LOVINGTON ABO POOL

WELL NO.	CURRENT DAILY PROD. (8-7-80)	EXPECTED DAILY PROD.*
15	140 BO x 6,623 BW	140 BO x 6,623 BW
16	SI	10 BO x 70 BW
17	210 BO x 875 BW	210 BO x 875 BW
18	SI	80 BO x 1,500 BW
19	207 BO x 3,373 BW	207 BO x 3,373 BW
20	SI	60 BO x 1,400 BW
21	SWD	SWD
22	SI	SWD
23	SI	150 BO x 1,400 BW
TOTAL	557 BO x 10,871 BW	857 BO x 15,241 BW
INCREMENTAL PROD:	300 BO x 4,370 BW	

* After converting #22 to SWD and installing ESP's on Nos. 16, 18, and 23.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 2
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR	ADDRESS
Amoco Production Company	P. O. Box 68 - Hobbs, NM 88240

LEASE NAME	WELL NO.	FIELD	COUNTY
State "E" Tract 18	22	Lovington Abo	Lea

LOCATION

UNIT LETTER G ; WELL IS LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROM THE East LINE, SECTION 2 TOWNSHIP 17-S RANGE 36-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	270'	275	Surface	Circulated
INTERMEDIATE	9-5/8"	3287'	300	Unknown	Cemented with DV tool at 2106'
LONG STRING	5-1/2"	8330'	835 sx originally will squeeze 450 sx	Approx. 4150'	Temp Survey
TUBING	3-1/2"	Approx. 8331'	NAME, MODEL AND DEPTH OF TUBING PACKER: Guiberson Uni Packer VI - 3-1/2" - 8300'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Abo	8350'	9250'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Internally Coated Tubing	8330' - 9000'	8330' - 9000'

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Producing Well	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

8338' - 8340' 75 sx sloset; 8292' - 8316' 150 sx Class H

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
80'	6800'	9500'

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
6,000	10,000	Closed	Pressure	1650#

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	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

City of Lovington, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Marathon Oil Company - P. O. Box 2409 - Hobbs, NM 88240

Cities Service Company - P. O. Box 1919 - Midland, TX 79702

Getty Oil Company - P. O. Box 730 - Hobbs, NM 88240

Amerada Hess Corporation - P. O. Box 2040 - Tulsa, OK 74102

Phillips Petroleum Company - 4001 Penbrook - Odessa, TX 79701

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 3
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
Yes	Yes	Yes

ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
Yes	No	Yes

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

B&D Laws — Administrative Analyst — June 20, 1980

(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.

Amoco Production Company

RESEARCH CENTER
WATER ANALYSIS

T.S. or File No.
Lab. No. T-24790
Field No.
API Well No.

OCATION SAMPLED: Division Houston District Area Levelland
Operator (Plant) Amoco Well No. 15 Lease Lovington Abo
tate (Province) New Mexico County (Parish)
wp. 17 S Rng. 36 E Sec. 1 Quarter (Lsd.) Other (Meridian)
Wildcat ( ) Field Well (X) Field name
ample collected from wellhead Date 9-1-78 Sample collected by
nterval sampled to Interval name Abo
ecovery

orm 97 transmitted by V. E. Staley Date 9-8-78 Authorized by

ORGANIC CONSTITUENTS in mg/1

	BOTTOM	MIDDLE	TOP	MUD	
nzene					
oluene					
C Gases					

DESCRIPTION OF SAMPLE

ample used for detailed analyses
ate received
ondition as received
olor
dor
spended solids
ottom sediment
il or fluorescence

QUALITY OF SAMPLE

	BOTTOM	MIDDLE	TOP
hloride			
n mg/1:			

OMMENTS:

CONVENTIONAL MAJOR ION ANALYSIS

			Major Ions mg/1	% of Total Major Ions	Reaction Value meq/1	% of Total Reaction Value
CATIONS	Sodium	Na^+	14,395	31.70	626.17	40.71
	Calcium	Ca^{++}	2,040	4.49	101.80	6.62
	Magnesium	Mg^{++}	500	1.10	41..	2.67
	Potassium	K^+				
ANIONS	Chloride	Cl^-	24,600	54.18	693.72	45.10
	Bicarbonate	HCO_3^-	1,170	2.58	19.19	1.25
	Sulfate	SO_4^{--}	2,700	5.95	56.16	3.65
	Carbonate	CO_3^{--}	0	0	0	0
	TOTAL		45,405			

Total solids by evaporation 45,740 mg/1
NaCl resistivity equivalent (Dunlap) 53,599 mg/1
Resistivity .147 ohm-meters at 77 °F
pH 7.1 Specific gravity 1.034 at 75 °F
Ryznar stability index (2pHs-pH) at °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/1	ANIONS	mg/1	OTHERS	mg/1

REMARKS AND CONCLUSIONS:

RECEIVED
HOBBS
DISTRICT
OCT 5 1978

DS	
DAS	
DE	
AF	
DS	
SE	
AS	
FILE	

W. V. Grisham
A. R. Reed
A. H. Green
C. W. Schmidt
David Boatwright

Analyst [signature] Date 10-2-78

Water charts on back ( )

Amoco Production Company

ENGINEERING CHART

SHEET NO. OF

FILE

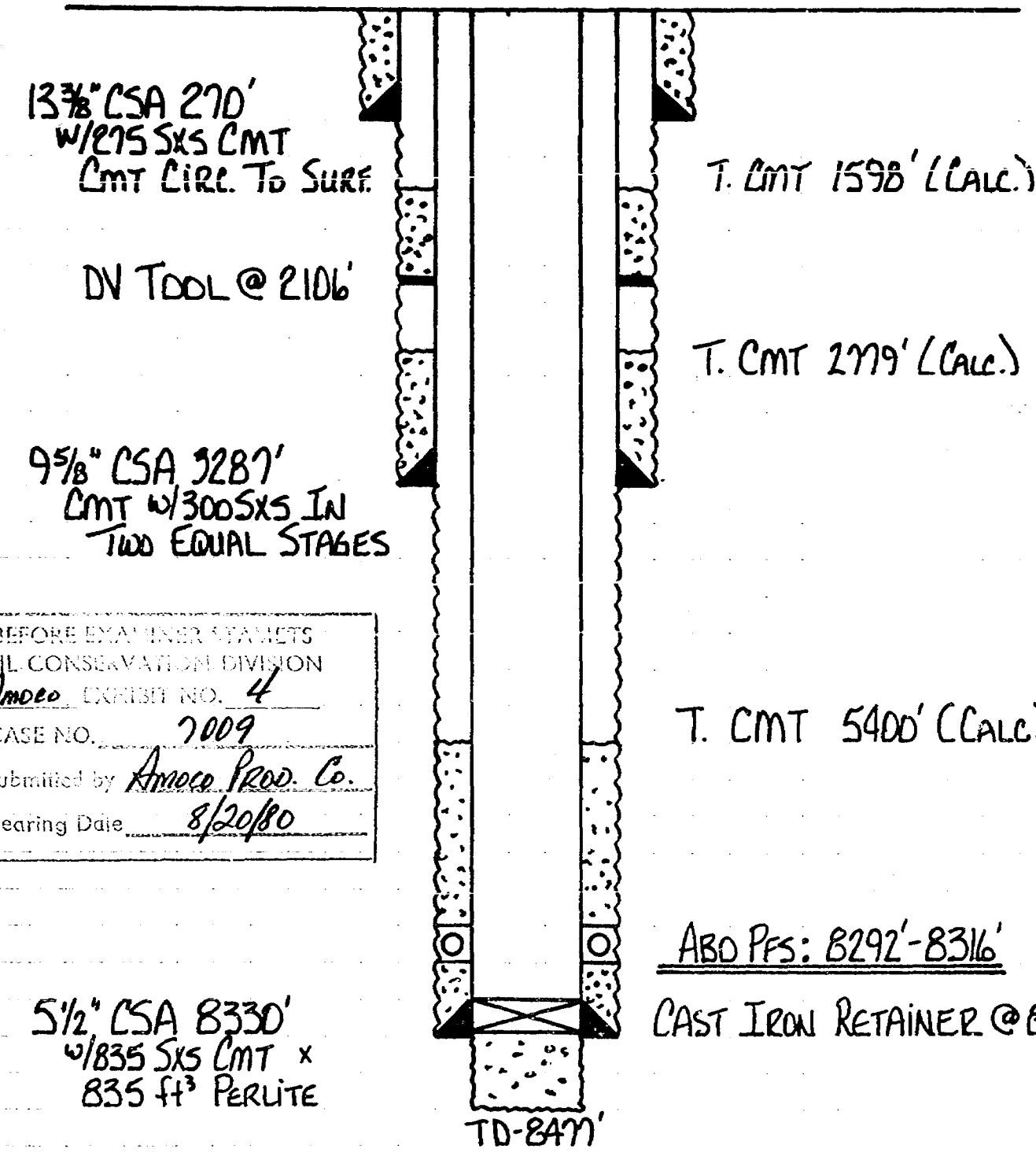
APPN

DATE

BY

SUBJECT STATE "E" TRACT 18 WELL No. 22
CURRENT WELLBORE ARRANGEMENT

LOC: 1650' FNL & 1650' FEL, SEC. 2, T-17-S, R-36-E,
LEA CO., NM



BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 4
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

Form 331 277

Amoco Production Company

ENGINEERING CHART

SHEET NO. OF

FILE

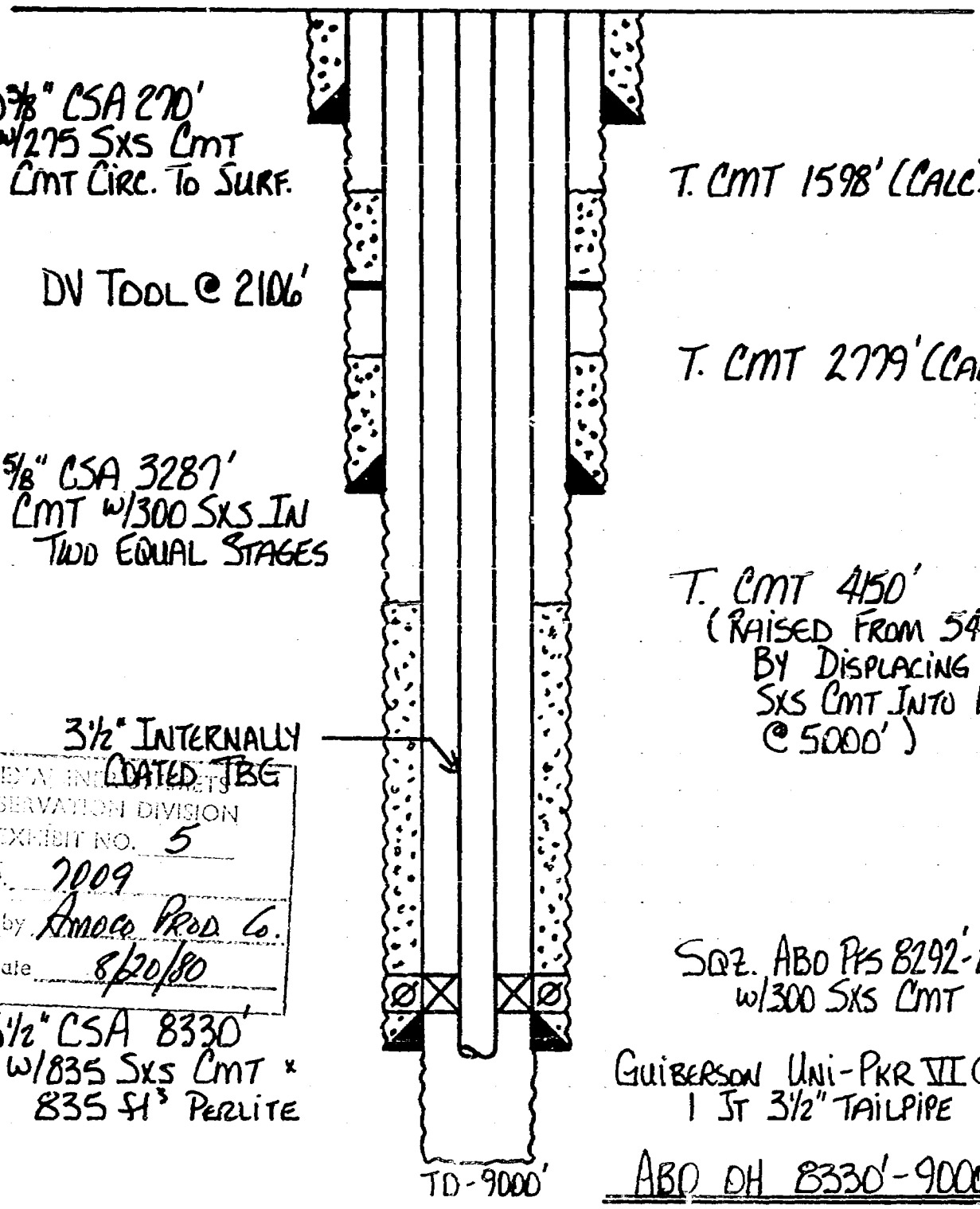
APPN

DATE

BY

SUBJECT STATE "E" TRACT 18 WELL NO. 22
PROPOSED WELLBORE ARRANGEMENT

LOC: 1650' FNL & 1650' FEL, SEC. 2, T-17-S, R-36-E,
LEA CO., NM



ABO OH 8330'-9000'

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 5
CASE NO. 7009
Submitted by Amoco PROD Co.
Hearing Date 8/20/80

Form 371 2/71

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 7
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 6/26/80

COMPLETION & CASING DATA
STATE "E" TRACT 18 WELL NO. 22
SWD APPLICATION

	LOCATION	TOTAL DEPTH	CURRENT PBD	PRODUCING INTERVAL (SUBSEA DEPTH)	CASING	SACKS CEMENT
AMOCO PRODUCTION CO.						
State "E" Tr. 18 #18	330' FNL & 330' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8530'	8415'	Abo: PF 8336' - 8392' (-4488' to -4544')	13 3/8" @ 259' 9 5/8" @ 3226' 7" @ 8530'	275 300 550
State "E" Tr. 18 #19	1650' FNL & 990' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8530'	8481'	Abo: PF 8254'-64', 8340'-50' (-4410' to -4420', -4496' to -4506')	13 3/8" @ 266' 9 5/8" @ 3298' 7" @ 8530'	332 300 225
State "E" Tr. 18 #20	1650' FNL & 330' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8525'	8365'	Abo: PF 8239'-99', 8338'-48' (-4392' to -4461', -4500' to -4510')	13 3/8" @ 280' 9 5/8" @ 3299' 7" @ 8520'	300 300 550
State "E" Tr. 18 #21	660' FNL & 1650' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8987'	8381'	Abo SWD: OH 8391' - 8987' (-4538 to -5134')	13 3/8" @ 269' 9 5/8" @ 3300' 7" @ 8391'	275 300 1105
State "E" Tr. 18 #23	860' FNL & 790' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8442'	8350'	Abo: PF 8234' - 8268' (-4392' to -4426')	11 3/4" @ 336' 8 5/8" @ 5116' 5 1/2" @ 8356'	635 2800 1000
ARAHO, INC.						
State WD-2	1650' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8889'	8889'	Abo SWD: OH 8528' - 8889' (-4670' to -5301')	13 3/8" @ 349' 9 5/8" @ 3318' 5 1/2" @ 8528'	450 1750 1400
GETTY						
Lovington Paddock Unit WI-62	1980' FSL & 560' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	9746'	6303'	Paddock WI: PF 6128' - 6294' (-2228 to -2454')	10 3/4" @ 461' 7 5/8" @ 3455' 5 1/2" @ 8916'	600 1136 800
RICE ENGINEERING						
State WD #1	990' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8858'	8858'	Abo: OH 8534' - 8858' (-4675' to -4999')	13 3/8" @ 396' 9 5/8" @ 3348' 5 1/2" @ 8530'	450 1750 1380
PHILLIPS						
Lovington #2	660' FSL & 1880' FEL Sec. 35, T-16-S, R-36-E Lea County, New Mexico	9069'	6343'	Paddock WI: PF 6194' - 6224', 6292' - 6328' (-2333' to -2363', -2431' to -2467')	13 3/8" @ 286' 8 5/8" @ 4694' 5 1/2" @ 8875'	325 2150 720

COMPLETION & CASING DATA
STATE "E" TRACT 18 WELL NO. 22
SWD APPLICATION

LOCATION	TOTAL DEPTH	CURRENT PBD	PRODUCING INTERVAL (SUBSEA DEPTH)	CASING	SACKS CEMENT	CEMENT TOP
330' FNL & 330' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8530'	8415'	Abo: PF 8336' - 8392' (-4488' to -4544')	13 3/8" @ 259' 9 5/8" @ 3226' 7" @ 8530'	275 300 550	Circ. 1600' 4979'
1650' FNL & 990' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8530'	8481'	Abo: PF 8254'-64', 8340'-50' (-4410' to -4420', -4496' to -4506')	13 3/8" @ 266' 9 5/8" @ 3298' 7" @ 8530'	332 300 225	Circ. 1537' 6775'
1650' FNL & 330' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8525'	8365'	Abo: PF 8239'-99', 8338'-48' (-4392' to -4461', -4500' to -4510')	13 3/8" @ 280' 9 5/8" @ 3299' 7" @ 8520'	300 300 550	Circ. 1695' (Calc.) 4128' (Calc.)
660' FNL & 1650' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8987'	8381'	Abo SWD: OH 8391' - 8987' (-4538 to -5134')	13 3/8" @ 269' 9 5/8" @ 3300' 7" @ 8391'	275 300 1105	Circ. 1500' (Calc.) 3375'
990' FNL & 790' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8442'	8350'	Abo: PF 8234' - 8268' (-4392' to -4426')	11 3/4" @ 336' 8 5/8" @ 5116' 5 1/2" @ 8356'	635 2800 1000	Circ. Circ. (Calc.) 2436'
1650' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8889'	8889'	Abo SWD: OH 8528' - 8889' (-4670' to -5301')	13 3/8" @ 349' 9 5/8" @ 3318' 5 1/2" @ 8528'	450 1750 1400	Circ. (Calc.) Circ. (Calc.) 2653' (Calc.)
1980' FSL & 560' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	9746'	6303'	Paddock WI: PF 6128' - 6294' (-2228 to -2454')	10 3/4" @ 461' 7 5/8" @ 3455' 5 1/2" @ 8916'	600 1136 800	Circ. (Calc.) Circ. (Calc.) 1358' (Calc.)
990' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8858'	8858'	Abo: OH 8534' - 8858' (-4675' to -4999')	13 3/8" @ 396' 9 5/8" @ 3348' 5 1/2" @ 8530'	450 1750 1380	Circ. (Calc.) Circ. (Calc.) 2739' (Calc.)
660' FSL & 1880' FEL Sec. 35, T-16-S, R-36-E Lea County, New Mexico	9069'	6343'	Paddock WI: PF 6194' - 6224', 6292' - 6328' (-2333' to -2363', -2431' to -2467')	13 3/8" @ 286' 8 5/8" @ 4694' 5 1/2" @ 8875'	325 2150 720	Circ. (Calc.) Circ. (Calc.) Circ. (Calc.)

AMOCO PRODUCTION CO.

STATE "E" TRACT 18 LEASE

LOVINGTON ABO POOL

WELL NO.	CURRENT DAILY PROD. (8-7-80)	EXPECTED DAILY PROD.*
15	140 BO x 6,623 BW	140 BO x 6,623 BW
16	SI	10 BO x 70 BW
17	210 BO x 875 BW	210 BO x 875 BW
18	SI	80 BO x 1,500 BW
19	207 BO x 3,373 BW	207 BO x 3,373 BW
20	SI	60 BO x 1,400 BW
21	SWD	SWD
22	SI	SWD
23	SI	150 BO x 1,400 BW
TOTAL	557 BO x 10,871 BW	857 BO x 15,241 BW
INCREMENTAL PROD:	300 BO x 4,370 BW	

* After converting #22 to SWD and installing ESP's on Nos. 16, 18, and 23.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 2
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR	ADDRESS
Amoco Production Company	P. O. Box 68 - Hobbs, NM 88240

LEASE NAME	WELL NO.	FIELD	COUNTY
State "E" Tract 18	22	Lovington Abo	Lea

LOCATION

UNIT LETTER G ; WELL IS LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROM THE East LINE, SECTION 2 TOWNSHIP 17-S RANGE 36-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	270'	275	Surface	Circulated
INTERMEDIATE	9-5/8"	3287'	300	Unknown	Cemented with DV tool at 2106'
LONG STRING	5-1/2"	8330'	835 sx originally will squeeze 450 sx	Approx. 4150'	Temp Survey
TUBING	3-1/2"	Approx. 8331'	NAME, MODEL AND DEPTH OF TUBING PACKER: Guiberson Uni Packer VI - 3-1/2" - 8300'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Abo	8350'	9250'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Internally Coated Tubing	8330' - 9000'	8330' - 9000'

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Producing Well	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

8338' - 8340' 75 sx sloset; 8292' - 8316' 150 sx Class H

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
80'	6800'	9500'

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
6,000	10,000	Closed	Pressure	1650#

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	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

City of Lovington, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Marathon Oil Company - P. O. Box 2409 - Hobbs, NM 88240

Cities Service Company - P. O. Box 1919 - Midland, TX 79702

Getty Oil Company - P. O. Box 730 - Hobbs, NM 88240

Amerada Hess Corporation - P. O. Box 2040 - Tulsa, OK 74102

Phillips Petroleum Company - 4001 Penbrook - Odessa, TX 79701

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 3
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
	Yes	Yes	Yes

ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
	Yes	No	Yes

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

B O Davis — Administrative Analyst — June 20, 1980

(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.

Amoco Production Company

RESEARCH CENTER
WATER ANALYSIS

T.S. or File No.
Lab. No. T-24790
Field No.
API Well No.

LOCATION SAMPLED: Division Houston — District — Area Levelland
Operator (Plant) Amoco — Well No. 15 — Lease Lovington Abo
State (Province) New Mexico — County (Parish) —
Twp. 17 S Rng. 36 E Sec. 1 — Quarter (Lsd.) — Other (Meridian)
Wildcat ( ) Field Well (X) Field name
Sample collected from wellhead — Date 9-1-78 — Sample collected by
Interval sampled — to — Interval name Abo
Recovery

Form 97 transmitted by V. E. Staley — Date 9-8-78 — Authorized by

ORGANIC CONSTITUENTS in mg/1

	BOTTOM	MIDDLE	TOP	MUD	
Benzene					
Toluene					
C Gases					

DESCRIPTION OF SAMPLE

Sample used for detailed analyses
Date received
Condition as received
Color
Odor
Suspended solids
Bottom sediment
Oil or fluorescence

QUALITY OF SAMPLE

	BOTTOM	MIDDLE	TOP
Source			
in mg/1:			

COMMENTS:

CONVENTIONAL MAJOR ION ANALYSIS

			Major Ions mg/1	% of Total Major Ions	Reaction Value meq/1	% of Total Reaction Value
CATIONS	Sodium	Na^+	14,395	31.70	626.17	40.71
	Calcium	Ca^{++}	2,040	4.49	101.80	6.62
	Magnesium	Mg^{++}	500	1.10	41.10	2.67
	Potassium	K^+				
ANIONS	Chloride	Cl^-	24,600	54.18	693.72	45.10
	Bicarbonate	HCO_3^-	1,170	2.58	19.19	1.25
	Sulfate	SO_4^{--}	2,700	5.95	56.16	3.65
	Carbonate	CO_3^{--}	0	0	0	0
	TOTAL		45,405			

Total solids by evaporation 45,740 mg/1
NaCl resistivity equivalent (Dunlap) 53,599 mg/1
Resistivity .147 ohm-meters at 77 °F
pH 7.1 Specific gravity 1.034 at 75 °F
Ryznar stability index (2pHs-pH) at °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/1	ANIONS	mg/1	OTHERS	mg/1

REMARKS AND CONCLUSIONS:

RECEIVED
HOBBS
DISTRICT
OCT 5 1978
DS
DAS
DE
AF
DS
SE
AS
File

C: W. V. Grisham
A. R. Reed
A. H. Green
C. W. Schmidt
David Boatwright

Analyst [signature] Date 10-2-78

Water charts on back ( )

Amoco Production Company

ENGINEERING CHART

SHEET NO. OF

FILE

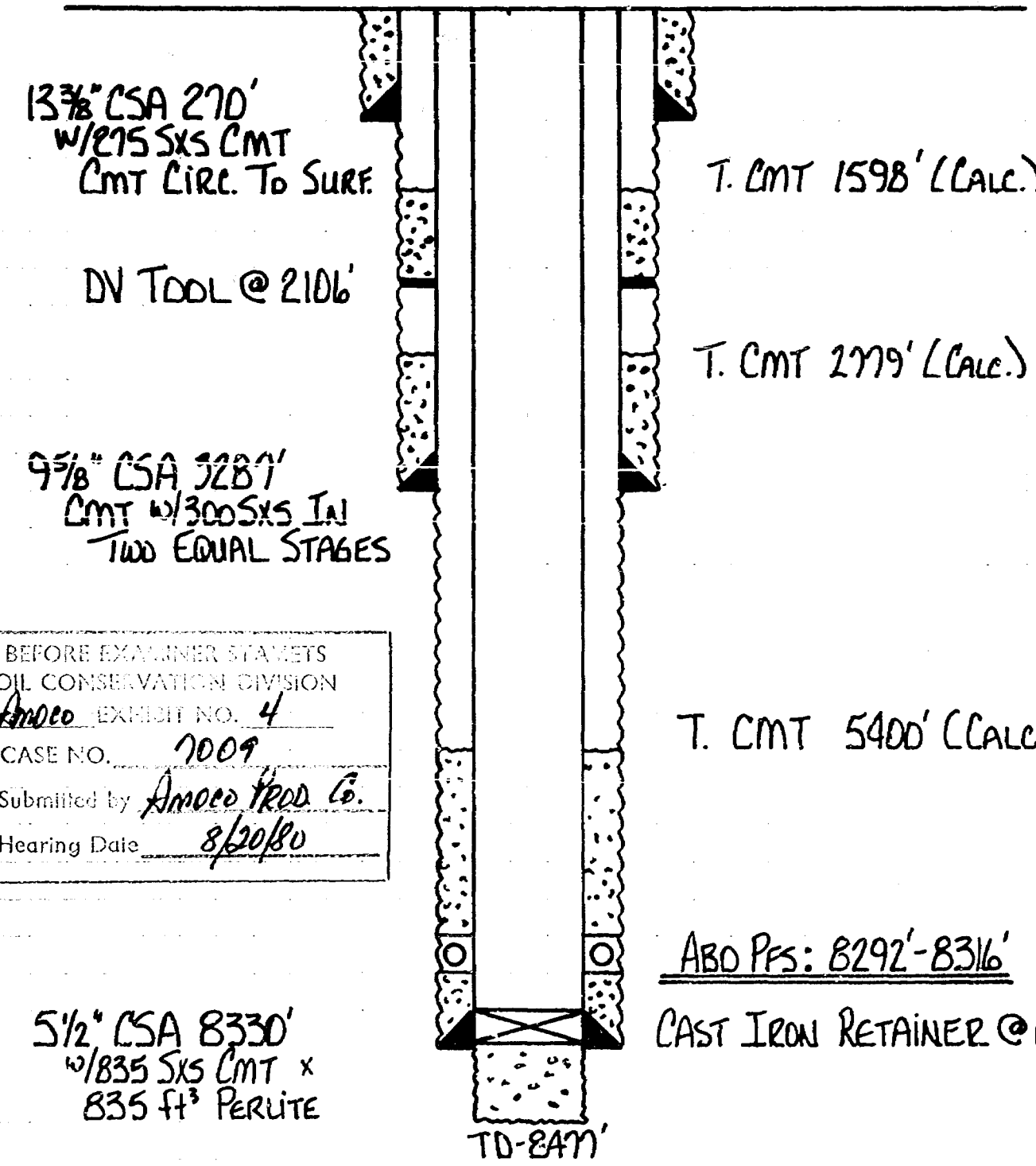
APPN

DATE

BY

SUBJECT STATE "E" TRACT 18 WELL No. 22
CURRENT WELLBORE ARRANGEMENT

LOC: 1650' FNL & 1650' FEL, SEC. 2, T-17-S, R-36-E,
LEA CO., NM



BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 4
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

Form 371 2-71

Amoco Production Company

ENGINEERING CHART

SHEET NO. OF

FILE

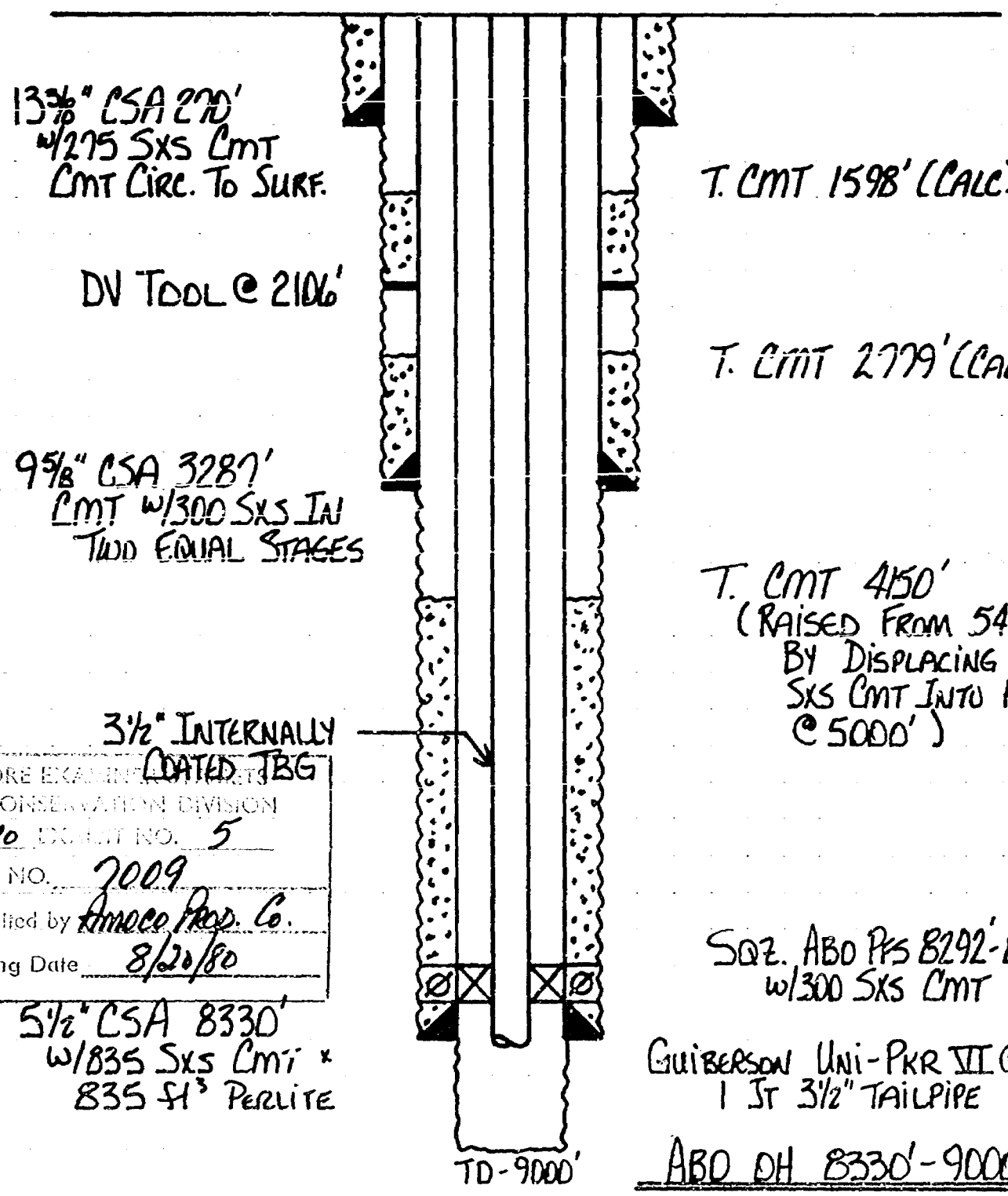
APPN

DATE

BY

SUBJECT STATE "E" TRACT 18 WELL NO. 22
PROPOSED WELLBORE ARRANGEMENT

LOC: 1650' FNL & 1650' FEL, SEC. 2, T-17-S, R-36-E,
LEA CO., NM



BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 5
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 7
CASE NO. 2009
Submitted by Amoco Prod. Co.
Hearing Date 8/28/80

COMPLETION & CASING DATA
STATE "E" TRACT 18 WELL NO. 22
SWD APPLICATION

	LOCATION	TOTAL DEPTH	CURRENT PBD	PRODUCING INTERVAL (SUBSEA DEPTH)	CASING	SACKS CEMEN
AMOCO PRODUCTION CO.						
State "E" Tr. 18 #18	330' FNL & 330' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8530'	8415'	Abo: PF 8336' - 8392' (-4488' to -4544')	13 3/8" @ 259' 9 5/8" @ 3226' 7" @ 8530'	275 300 550
State "E" Tr. 18 #19	1650' FNL & 990' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8530'	8481'	Abo: PF 8254'-64', 8340'-50' (-4410' to -4420', -4496' to -4506')	13 3/8" @ 266' 9 5/8" @ 3298' 7" @ 8530'	332 300 225
State "E" Tr. 18 #20	1650' FNL & 330' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8525'	8365'	Abo: PF 8239'-99', 8338'-48' (-4392' to -4461', -4500' to -4510')	13 3/8" @ 280' 9 5/8" @ 3299' 7" @ 8520'	300 300 550
State "E" Tr. 18 #21	660' FNL & 1650' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8987'	8381'	Abo SWD: OH 8391' - 8987' (-4538 to -5134')	13 3/8" @ 269' 9 5/8" @ 3300' 7" @ 8391'	275 300 1105
State "E" Tr. 18 #23	860' FNL & 790' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8442'	8350'	Abo: PF 8234' - 8268' (-4392' to -4426')	11 3/4" @ 336' 8 5/8" @ 5116' 5 1/2" @ 8356'	635 2800 1000
ARAHO, INC.						
State WD-2	1650' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8889'	8889'	Abo SWD: OH 8528' - 8889' (-4670' to -5301')	13 3/8" @ 349' 9 5/8" @ 3318' 5 1/2" @ 8528'	450 1750 1400
GETTY						
Lovington Paddock Unit WI-62	1980' FSL & 560' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	9746'	6303'	Paddock WI: PF 6128' - 6294' (-2228 to -2454')	10 3/4" @ 461' 7 5/8" @ 3455' 5 1/2" @ 8916'	600 1136 800
RICE ENGINEERING						
State WD #1	990' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8858'	8858'	Abo: OH 8534' - 8858' (-4675' to -4999')	13 3/8" @ 396' 9 5/8" @ 3348' 5 1/2" @ 8530'	450 1750 1380
PHILLIPS						
Lovington #2	660' FSL & 1880' FEL Sec. 35, T-16-S, R-36-E Lea County, New Mexico	9069'	6343'	Paddock WI: PF 6194' - 6224', 6292' - 6328' (-2333' to -2363', -2431' to -2467')	13 3/8" @ 286' 8 5/8" @ 4694' 5 1/2" @ 8875'	325 2150 720

COMPLETION & CASING DATA
STATE "E" TRACT 18 WELL NO. 22
SWD APPLICATION

LOCATION	TOTAL DEPTH	CURRENT PBD	PRODUCING INTERVAL (SUBSEA DEPTH)	CASING	SACKS CEMENT	CEMENT TOP
330' FNL & 330' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8530'	8415'	Abo: PF 8336' - 8392' (-4488' to -4544')	13 3/8" @ 259' 9 5/8" @ 3226' 7" @ 8530'	275 300 550	Circ. 1600' 4979'
1650' FNL & 990' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8530'	8481'	Abo: PF 8254'-64', 8340'-50' (-4410' to -4420', -4496' to -4506')	13 3/8" @ 266' 9 5/8" @ 3298' 7" @ 8530'	332 300 225	Circ. 1537' 6775'
1650' FNL & 330' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8525'	8365'	Abo: PF 8239'-99', 8338'-48' (-4392' to -4461', -4500' to -4510')	13 3/8" @ 280' 9 5/8" @ 3299' 7" @ 8520'	300 300 550	Circ. 1660' (Calc.) 4128' (Calc.)
660' FNL & 1650' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8987'	8381'	Abo SWD: OH 8391' - 8987' (-4538 to -5134')	13 3/8" @ 269' 9 5/8" @ 3300' 7" @ 8391'	275 300 1105	Circ. 1500' (Calc.) 3375'
860' FNL & 790' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8442'	8350'	Abo: PF 8234' - 8268' (-4392' to -4426')	11 3/4" @ 336' 8 5/8" @ 5116' 5 1/2" @ 8356'	635 2800 1000	Circ. Circ. (Calc.) 2436'
1650' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8889'	8889'	Abo SWD: OH 8528' - 8889' (-4670' to -5301')	13 3/8" @ 349' 9 5/8" @ 3318' 5 1/2" @ 8528'	450 1750 1400	Circ. (Calc.) Circ. (Calc.) 2653' (Calc.)
1980' FSL & 560' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	9746'	6303'	Paddock WI: PF 6128' - 6294' (-2228 to -2454')	10 3/4" @ 461' 7 5/8" @ 3455' 5 1/2" @ 8916'	600 1136 800	Circ. (Calc.) Circ. (Calc.) 1358' (Calc.)
990' FNL & 2310' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8858'	8858'	Abo: OH 8534' - 8858' (-4675' to -4999')	13 3/8" @ 396' 9 5/8" @ 3348' 5 1/2" @ 8530'	450 1750 1380	Circ. (Calc.) Circ. (Calc.) 2739' (Calc.)
660' FSL & 1880' FEL Sec. 35, T-16-S, R-36-E Lea County, New Mexico	9069'	6343'	Paddock WI: PF 6194' - 6224', 6292' - 6328' (-2333' to -2363', -2431' to -2467')	13 3/8" @ 286' 8 5/8" @ 4694' 5 1/2" @ 8875'	325 2150 720	Circ. (Calc.) Circ. (Calc.) Circ. (Calc.)

AMOCO PRODUCTION CO.

STATE "E" TRACT 18 LEASE

LOVINGTON ABO POOL

WELL NO.	CURRENT DAILY PROD. (8-7-80)	EXPECTED DAILY PROD.*
15	140 BO x 6,623 BW	140 BO x 6,623 BW
16	SI	10 BO x 70 BW
17	210 BO x 875 BW	210 BO x 875 BW
18	SI	80 BO x 1,500 BW
19	207 BO x 3,373 BW	207 BO x 3,373 BW
20	SI	60 BO x 1,400 BW
21	SWD	SWD
22	SI	SWD
23	SI	150 BO x 1,400 BW
TOTAL	557 BO x 10,871 BW	857 BO x 15,241 BW
INCREMENTAL PROD:	300 BO x 4,370 BW	

* After converting #22 to SWD and installing ESP's on Nos. 16, 18, and 23.

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 2
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR		ADDRESS	
Amoco Production Company		P. O. Box 68 - Hobbs, NM 88240	
LEASE NAME	**WELL NO.**	**FIELD**	**COUNTY**
State "E" Tract 18	22	Lovington Abo	Lea

LOCATION

UNIT LETTER G ; WELL IS LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROM THE East LINE, SECTION 2 TOWNSHIP 17-S RANGE 36-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	270'	275	Surface	Circulated
INTERMEDIATE	9-5/8"	3287'	300	Unknown	Cemented with DV tool at 2106'
LONG STRING	5-1/2"	8330'	835 sx originally will squeeze 450 sx	Approx. 4150'	Temp Survey
TUBING	3-1/2"	Approx. 8331'	NAME, MODEL AND DEPTH OF TUBING PACKER: Guiberson Uni Packer VI - 3-1/2" - 8300'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Abo	8350'	9250'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Internally Coated Tubing	8330' - 9000'	8330' - 9000'

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Producing Well	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

8338' - 8340' 75 sx sloset; 8292' - 8316' 150 sx Class H

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
80'	6800'	9500'

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM?	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
6,000	10,000	Closed	Pressure	1650#

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	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

City of Lovington, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Marathon Oil Company - P. O. Box 2409 - Hobbs, NM 88240

Cities Service Company - P. O. Box 1919 - Midland, TX 79702

Getty Oil Company - P. O. Box 730 - Hobbs, NM 88240

Amerada Hess Corporation - P. O. Box 2040 - Tulsa, OK 74102

Phillips Petroleum Company - 4001 Penbrook - Odessa, TX 79761

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco Exhibit No. 3
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
	Yes	Yes	Yes
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	**PLAT OF AREA**	**ELECTRICAL LOG**	**DIAGRAMMATIC SKETCH OF WELL**
	Yes	No	Yes

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

Bob Davis — Administrative Analyst — June 20, 1980

(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.

Amoco Production Company

RESEARCH CENTER
WATER ANALYSIS

T.S. or File No. [illegible]
Lab. No. T-24790
Field No.
API Well No.

OCATION SAMPLED: Division Houston — District — Area Levelland
Operator (Plant) Amoco — Well No. 15 — Lease Lovington Abo
State (Province) New Mexico — County (Parish)
Twp. 17 S Rng. 36 E Sec. 1 — Quarter (Lsd.) — Other (Meridian)
Wildcat ( ) Field Well (X) Field name
Sample collected from wellhead — Date 9-1-78 — Sample collected by
Interval sampled — to — Interval name Abo
Recovery

Form 97 transmitted by V. E. Staley — Date 9-8-78 — Authorized by

ORGANIC CONSTITUENTS in mg/l

	BOTTOM	MIDDLE	TOP	MUD	
Benzene					
Toluene					
C Gases					

DESCRIPTION OF SAMPLE

Sample used for detailed analyses
Date received
Condition as received
Color
Odor
Suspended solids
Bottom sediment
Oil or fluorescence

QUALITY OF SAMPLE

	BOTTOM	MIDDLE	TOP
Chloride in mg/l:			

COMMENTS:

CONVENTIONAL MAJOR ION ANALYSIS

			Major Ions mg/1	% of Total Major Ions	Reaction Value meq/1	% of Total Reaction Value
CATIONS	Sodium	Na^+	14,395	31.70	626.17	40.71
	Calcium	Ca^{++}	2,040	4.49	101.80	6.62
	Magnesium	Mg^{++}	500	1.10	41.10	2.67
	Potassium	K^+				
ANIONS	Chloride	Cl^-	24,600	54.18	693.72	45.10
	Bicarbonate	HCO_3^-	1,170	2.58	19.19	1.25
	Sulfate	SO_4^{--}	2,700	5.95	56.16	3.65
	Carbonate	CO_3^{--}	0	0	0	0
	TOTAL		45,405			

Total solids by evaporation 45,740 mg/l
NaCl resistivity equivalent (Dunlap) 53,599 mg/l
Resistivity .147 ohm-meters at 77 °F
pH 7.1 Specific gravity 1.034 at 75 °F
Ryznar stability index (2pHs-pH) — at — °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/1	ANIONS	mg/1	OTHERS	mg/1

REMARKS AND CONCLUSIONS:

RECEIVED HOBBS DISTRICT
OCT 5 1978

DS	
DAS	
DE	[illegible]
AF	
DS	
SE	
AS	
[illegible]	

cc: W. V. Grisham
A. R. Reed
A. H. Green
G. W. Schmidt
David Boatwright

Analyst [signature] Date 10-2-78

Water Charts on back ( )

SHEET NO. OF

FILE

APPN

DATE

BY

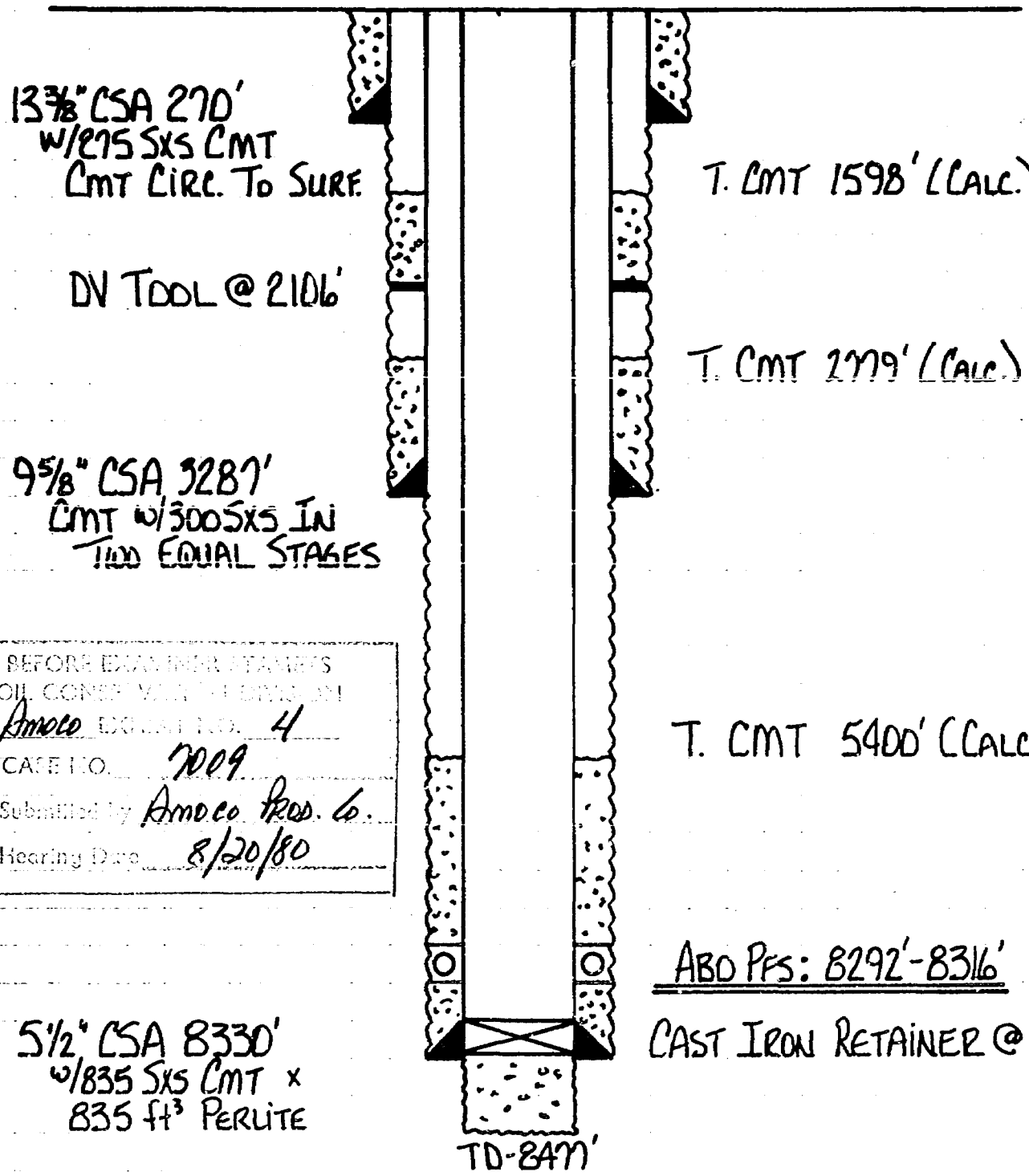
Amoco Production Company

ENGINEERING CHART

SUBJECT STATE "E" TRACT 18 WELL No. 22

CURRENT WELLBORE ARRANGEMENT

LOC: 1650' FNL & 1650' FEL, SEC. 2, T-17-S, R-36-E,
LEA CO., NM



BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 4
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

Form 371 371

Amoco Production Company

ENGINEERING CHART

SHEET NO. OF

FILE

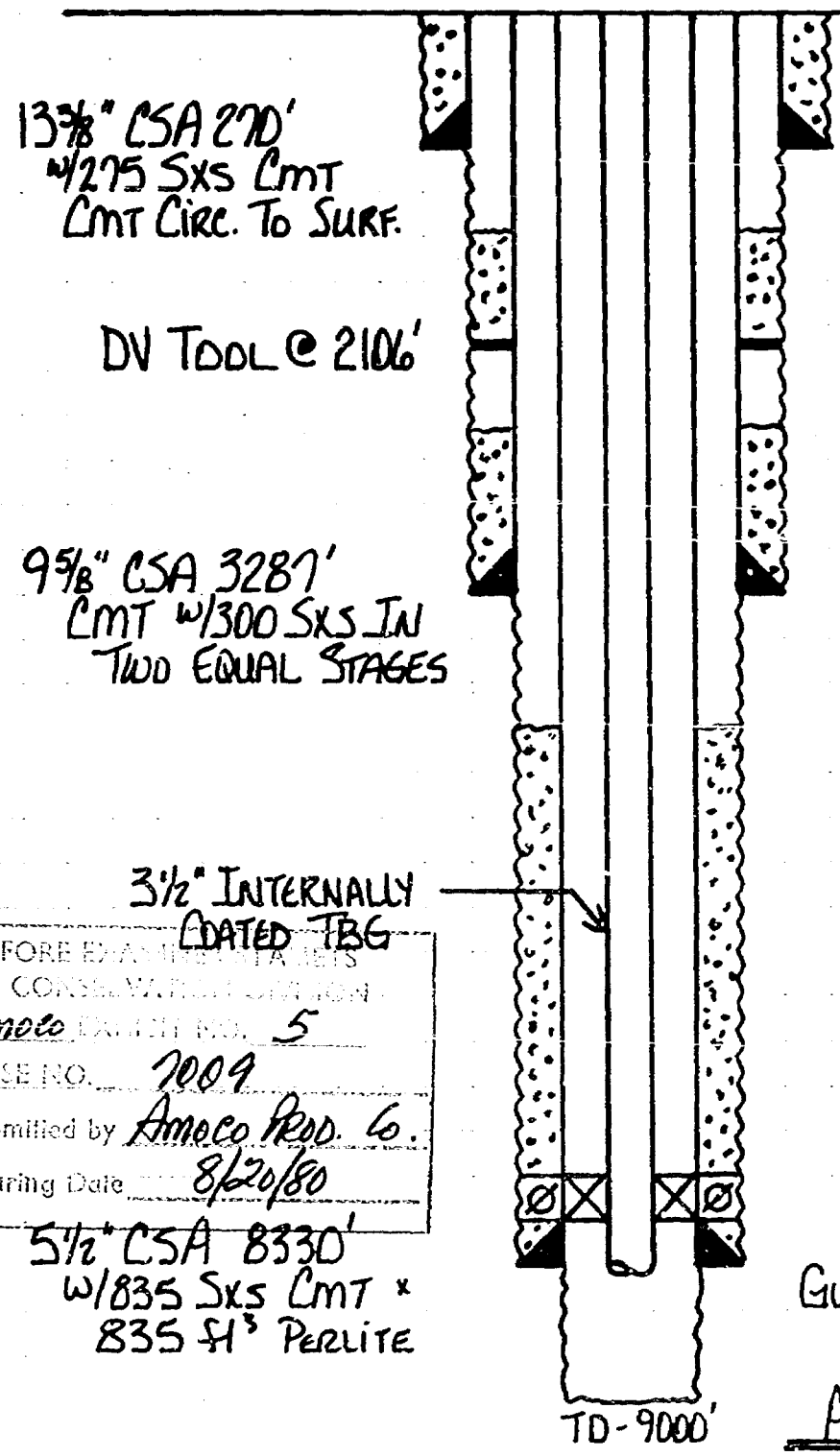
APPN

DATE

BY

SUBJECT STATE "E" TRACT 18 WELL NO. 22
PROPOSED WELLBORE ARRANGEMENT

LOC: 1650' FNL & 1650' FEL, SEC. 2, T-17-S, R-36-E,
LEA CO., NM



13⅜" CSA 270'
w/275 SXS CMT
CMT CIRC. TO SURF.

DV TOOL @ 2106'

9⅝" CSA 3287'
CMT w/300 SXS IN
TWO EQUAL STAGES

3½" INTERNALLY
COATED TBG

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 5
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

5½" CSA 8330'
w/835 SXS CMT x
835 ft³ PERLITE

TD-9000'

T. CMT 1598' (CALC.)

T. CMT 2779' (CALC.)

T. CMT 4150'
(RAISED FROM 5400'
BY DISPLACING 450
SXS CMT INTO PFS
@ 5000')
above SA zone

SQZ. ABO PFS 8292'-8316'
w/300 SXS CMT

GUIBERSON UNI-PKR VII @ 8300'
1 JT 3½" TAILPIPE

ABO OH 8330'-9000'

Form 331 331

BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
Amoco EXHIBIT NO. 7
CASE NO. 7009
Submitted by Amoco Prod. Co.
Hearing Date 8/20/80

COMPLETION & CASING DATA
STATE "E" TRACT 18 WELL NO. 22
SWD APPLICATION

	LOCATION	TOTAL DEPTH	CURRENT PBD	PRODUCING INTERVAL (SUBSEA DEPTH)	CASING	SACKS CEMEN
~~AMOCO PRODUCTION CO.~~						
State "E" Tr. 18 #18	330' FNL & 330' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8530'	8415'	Abo: PF 8336' - 8392' (-4488' to -4544')	13 3/8" @ 259' 9 5/8" @ 3226' 7" @ 8530'	275 300 550
State "E" Tr. 18 #19	1650' FNL & 990' FWL Sec. 1, T-17-S, R-36-E Lea County, New Mexico	8530'	8481'	Abo: PF 8254'-64', 8340'-50' (-4410' to -4420', -4496' to -4506')	13 3/8" @ 266' 9 5/8" @ 3298' 7" @ 8530'	332 300 225
State "E" Tr. 18 #20	1650' FNL & 330' FWL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8525'	8365'	Abo: PF 8239'-99', 8338'-48' (-4392' to -4461', -4500' to -4510')	13 3/8" @ 280' 9 5/8" @ 3299' 7" @ 8520'	300 300 550
State "E" Tr. 18 #21	660' FNL & 1650' FEL Sec. 2, T-17-S, R-36-E Lea County, New Mexico	8987'	8381'	Abo SWD: OH 8391' - 8987' (-4538 to -5134')	13 3/8" @ 269' 9 5/8" @ 3300' 7" @ 8391'	275 300 1105
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SWD APPLICATION

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ATWOOD, MALONE, MANN & COOTER
A PROFESSIONAL ASSOCIATION
LAWYERS

JEFF D. ATWOOD [1883-1960]
ROSS L. MALONE [1910-1974]

P. O. DRAWER 700
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO 88201
[505] 622-6221

CHARLES F. MALONE
RUSSELL D. MANN
PAUL A. COOTER
BOB F. TURNER
JOHN W. BASSETT
ROBERT E. SABIN
BRIAN W. COPPLE

RANDAL W. ROBERTS
STEVEN L. BELL
WILLIAM P. LYNCH

August 12, 1980

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

RE: Examiner Hearing - Wednesday, August 20, 1980
Cause Nos. 7009 and 7010

Dear Mr. Ramey:

We would appreciate your filing the enclosed Entries of Appearance for Amoco Production Company in Cause Nos. 7009 and 7010.

Your assistance in this matter is appreciated.

Very truly yours,

Paul Cooter

PC/le

Enc.

cc: C. A. Mote, Esq.

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION)
OF AMOCO PRODUCTION COMPANY FOR) NO. 7009
SALT WATER DISPOSAL, LEA COUNTY,)
NEW MEXICO.)

ENTRY OF APPEARANCE

The undersigned hereby enter their appearance on behalf of Amoco Production Company with C. A. Mote of Houston, Texas.

ATWOOD, MALONE, MANN & COOTER, P.A.

By _____
P. O. Drawer 700
Roswell, New Mexico 88201

Docket No. 26-80

Dockets Nos. 27-80 and 28-80 are tentatively set for September 3 and 17, 1980. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 20, 1980

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

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for September, 1980, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for September, 1980, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 6998: Application of Monsanto Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Back Basin Unit Area, comprising 1,920 acres, more or less, of State and Federal lands in Township 23 South, Range 34 East.

CASE 6999: Application of Gulf Oil Corporation for an unorthodox location and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the simultaneous dedication of a previously approved 320-acre non-standard proration unit comprising the N/2 of Section 36, Township 21 South, Range 36 East, Eumont Gas Pool, to its Harry Leonard NCT-C Well No. 9 located in Unit B, and its No. 8, at an unorthodox location 1980 feet from the North line and 660 feet from the East line of Section 36.

CASE 7000: Application of Cavalcade Oil Corporation for an unorthodox oil well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its McClay Well No. 11 2385 feet from the South line and 1834 feet from the West line of Section 33, Township 18 South, Range 30 East, the NE/4 SW/4 of said Section 33 to be dedicated to the well.

CASE 7001: Application of McClellan Oil Corporation for three unorthodox oil well locations, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for three following unorthodox locations for wells to be drilled in Section 24, Township 14 South, Range 29 East, Double L Queen Associated Pool: 1155 feet from the North line and 2145 feet from the East line; 1155 feet from the North and East lines; and 1650 feet from the North line and 1155 feet from the East line; the respective 40-acre tract would be dedicated to each well.

CASE 7002: Application of Orville Slaughter for the amendment of Order No. R-5947, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-5947 to provide for the commingling of Oswell-Farmington production from his Sangre de Cristo Well No. 1 with undesignated Fruitland production from Wells Nos. 2 and 2S, all in Section 34, Township 30 North, Range 11 West.

CASE 7003: Application of El Paso Natural Gas Company for directional drilling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to directionally drill a well, the surface location of which is 590 feet from the South line and 2400 feet from the East line of Section 1, Township 29 North, Range 13 West, in such a manner as to bottom it within 175 feet of a point 990 feet from the South line and 1650 feet from the West line of said Section 1.

CASE 7004: Application of Anadarko Production Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Morrow formations underlying the N/2 of Section 12, Township 19 South, Range 25 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6938: (Continued from June 25, 1980, Examiner Hearing)

Application of Anadarko Production Company for an unorthodox gas well location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Dalport Federal Well No. 1 660 feet from the South and West lines of Section 20, Township 13 South, Range 31 East, Southeast Chaves Queen Gas Area, the W/2 of said Section 20 to be dedicated to the well.

CASE 6939: (Continued from June 25, 1980, Examiner Hearing)

Application of Anadarko Production Company for compulsory pooling, Eddy County, New Mexico Applicant, in the above-styled cause, seeks an order pooling all mineral interests at a depth from 2400 feet to 5000 feet below the surface, Turkey Track Field, underlying the SE/4 SE/4 of Section 10, Township 19 South, Range 29 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6940: (Continued from July 23, 1980, Examiner Hearing)

Application of Adobe Oil Company for compulsory pooling, Lea County, New Mexico.
Applicant, in the above-styled cause, seeks an order pooling all mineral interests down through the Wolfcamp formation underlying the NW/4 SE/4 for oil and the SE/4 for gas, Section 23, Township 20 South, Range 38 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6961: (Continued from July 23, 1980, Examiner Hearing) (This case will be continued to September 17.)

Application of Conoco Inc. for a dual completion and unorthodox well location, Lea County, New Mexico.
Applicant, in the above-styled cause, seeks approval for the dual completion of its Meyer A-29 Well No. 11 to be drilled at an unorthodox location 990 feet from the North line and 660 feet from the East line of Section 29, Township 22 South, Range 36 East, to produce gas from the Langley-Devonian and -Ellenburger Pools thru parallel strings of tubing, the E/2 of said Section 29 to be dedicated to the well.

CASE 7005: Application of Sol West III for an NGPA determination, Eddy County, New Mexico.
Applicant, in the above-styled cause, seeks a new onshore reservoir determination in the Morrow formation for his Turkey Track-Morrow Sand Well No. 1 in Unit I of Section 26, Township 18 South, Range 28 East.

CASE 7006: Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico.
Applicant, in the above-styled cause, seeks approval for the Northwest Gladiola Unit Area, comprising 1,280 acres, more or less, of State and fee lands in Townships 11 and 12 South, Range 37 East.

CASE 7007: Application of Harvey E. Yates Company for downhole commingling, Eddy County, New Mexico.
Applicant, in the above-styled cause, seeks approval for the downhole commingling of Morrow and Atoka production in the wellbore of its North Travis 12 Deep Well No. 1 located in Unit O of Section 12, Township 18 South, Range 28 East.

CASE 7008: Application of Coronado Exploration Corp. for eight compulsory poolings, Chaves County, New Mexico.
Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the San Andres formation underlying eight 40-acre proration units, being the NE/4 NE/4 of Section 4 and the NW/4 NE/4 of Section 5, both in Township 12 South, Range 28 East, and the NW/4 SE/4 of Section 6, the NE/4 NW/4 of Section 23, the NE/4 SE/4 of Section 28, the SE/4 SE/4 of Section 29, the NE/4 NW/4 of Section 32, and the SE/4 NW/4 of Section 33, all in Township 11 South, Range 28 East, each to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said wells and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the wells, and a charge for risk involved in drilling said wells.

CASE 6994: (Continued from August 6, 1980, Examiner Hearing)

Application of Enserch Exploration, Inc. for compulsory pooling, Lea County, New Mexico.
Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp thru Siluro-Devonian formations underlying the N/2 of Section 14, Township 25 South, Range 34 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 6996: (Continued from August 6, 1980, Examiner Hearing)

Application of John E. Schalk for compulsory pooling, Rio Arriba County, New Mexico.
Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Blanco Mesaverde Pool underlying the NE/4 of Section 8, Township 25 North, Range 3 West, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision, designation of applicant as operator of the well, and a charge for risk involved in drilling said well.

CASE 7009: 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 Abo formation in the interval from 8330 feet to 9000 feet in its State "E" Tract 18 Well No. 22 in Unit C of Section 2, Township 17 South, Range 36 East, Lovington-Abo Pool.

CASE 7010: Application of Amoco Production Company for a dual completion, unorthodox well location, and simultaneous dedication, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Myers "B" Federal Well No. 28 at an unorthodox location 330 feet from the South line and 420 feet from the West line of Section 9, Township 24 South, Range 37 East, to produce gas from the Jalmat Gas Pool and oil from the Langlie Mattix Pool, to be simultaneously dedicated in the gas zone with its No. 13 located in Unit L of Section 9.

CASE 7011: (This case will be continued to the September 17, 1980, hearing.)

Application of Amoco Production Company for downhole commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole comaingling of Fruitland and Blanco-Pictured Cliffs production in the wellbores of the following six wells: Elliott "C" No. 1, SE/4 of Section 9, Township 30 North, Range 9 West; Elliott "B" No. 8, NE/4 of Section 10; "A" Nos. 3 and 2, NE/4 and NW/4, Section 11; "D" No. 7, SW/4 of Section 11; and "E" No. 1, NW/4 of Section 14, all in Township 29 North, Range 9 West.

CASE 6981: (Continued from July 23, 1980, Examiner Hearing)

Application of Bass Enterprises Production Company for a special gas-oil ratio limitation, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks a special gas-oil ratio limitation of 8000 to one for the Palmillo-Bone Springs Pool.

CASE 7012: Application of Amoco Production Company for an NGPA determination, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks a new onshore reservoir determination in the Atoka formation for its Pardue Farms Gas Com Well No. 1 in Unit G of Section 26, Township 23 South, Range 28 East.

CASE 7013: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, abolishing, contracting vertical limits, and extending certain pools in Chaves, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Yates production and designated as the Byers-Yates Gas Pool. The discovery well is Exxon Corporation Bowers A Federal Well No. 37 located in Unit P of Section 30, Township 18 South, Range 38 East, NMPM. Said pool would comprise:

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
Section 30: SE/4

(b) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Atoka production and designated as the West Jal-Atoka Gas Pool. The discovery well is Getty Oil Company West Jal B Deep Well No. 1 located in Unit H of Section 17, Township 25 South, Range 36 East, NMPM. Said pool would comprise:

TOWNSHIP 25 SOUTH, RANGE 36 EAST, NMPM
Section 17: E/2

(c) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the Saunders-Morrow Gas Pool with special vertical limits defined as being from the top of the Morrow formation at 12,150 feet to the top of the Mississippian at 12,445 feet, as found on the log of the discovery well, the Adobe Oil and Gas Corporation Gray 35 Well No. 1 located in Unit N of Section 35, Township 14 South, Range 33 East, NMPM. Said pool would comprise:

TOWNSHIP 14 SOUTH, RANGE 33 EAST, NMPM
Section 35: All

(d) ABOLISH the North Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, described as:

TOWNSHIP 13 SOUTH, RANGE 32 EAST, NMPM
Section 13: SE/4
Section 23: SE/4
Section 24: S/2 and NE/4
Section 25: N/2 and SE/4
Section 26: N/2

TOWNSHIP 13 SOUTH, RANGE 33 EAST, NMPM
Section 18: S/2
Section 19: N/2 and SE/4
Section 20: All

(e) EXTEND the Baum-Upper Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 13 SOUTH, RANGE 32 EAST, NMPM
Section 12: SE/4
Section 23: SE/4
Section 24: S/2 and NE/4
Section 25: All
Section 26: N/2

TOWNSHIP 13 SOUTH, RANGE 33 EAST, NMPM
Section 18: S/2
Section 19: N/2 and SE/4
Section 20: All

(f) ABOLISH the Callina-San Andres Pool in Chaves County, New Mexico, described as:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 6: NW/4

(g) EXTEND the Tomahawk-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 6: NW/4

(h) ABOLISH the West Tonto-Pennsylvanian Gas Pool in Lea County, New Mexico, described as:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 12: S/2

TOWNSHIP 19 SOUTH, RANGE 33 EAST, NMPM
Section 7: All
Section 8: W/2
Section 18: N/2

(i) EXTEND the Buffalo-Pennsylvanian Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 1: S/2
Section 12: S/2

TOWNSHIP 19 SOUTH, RANGE 33 EAST, NMPM
Section 6: SW/4
Section 7: All
Section 8: W/2
Section 18: N/2

(j) CONTRACT the vertical limits of the Saunders-Permo Pennsylvanian Pool with special vertical limits defined as being from the top of the Wolfcamp formation at 9,195 feet to 10,705 feet into Pennsylvanian formation, as found on log of Adobe Oil and Gas Corporation Gray 35 Well No. 1 located in Unit H of Section 35, Township 14 South, Range 33 East, NMPM, and redesignate said Saunders-Permo Pennsylvanian Pool to Saunders Permo-Upper Pennsylvanian Pool.

(k) EXTEND the Airstrip-Upper Bone Springs Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM
Section 25: NE/4

(l) EXTEND the South Bell Lake-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 34 EAST, NMPM
Section 18: S/2

(m) EXTEND the Chaveroo-San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 32 EAST, NMPM
Section 13: SW/4

(n) EXTEND the Custer-Devonian Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 36 EAST, NMPM
Section 36: S/2

TOWNSHIP 25 SOUTH, RANGE 36 EAST, NMPM
Section 1: E/2

(o) EXTEND the Custer-Ellenburger Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 36 EAST, NMPM
Section 36: S/2

TOWNSHIP 25 SOUTH, RANGE 36 EAST, NMPM
Section 1: E/2

(p) EXTEND the Flying "N"-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 33 EAST, NMPM
Section 19: NE/4

(q) EXTEND the Hardy-Blinebry Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
Section 12: NW/4

(r) EXTEND the Hardy-Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
Section 12: NW/4

(s) EXTEND the Hobbs-Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 38 EAST, NMPM
Section 3: SW/4

(t) EXTEND the South Kemnitz-Cisco Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 33 EAST, NMPM
Section 22: SE/4
Section 27: NE/4

(u) EXTEND the North Lusk-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 32: N/2
Section 33: W/2

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 4: W/2

(v) EXTEND the Querecho Plains-Yates Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 35: NW/4

(w) EXTEND the South Salt Lake-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 32 EAST, NMPM
Section 6: Lots 9, 10, 15, 16, and SE/4

(x) EXTEND the Northwest Todd-San Andres Gas Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 35 EAST, NMPM
Section 7: NE/4

(y) EXTEND the Tom-Tom San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 31 EAST, NMPM
Section 32: SE/4 SW/4

(z) EXTEND the Warren-Tubb Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 38 EAST, NMPM
Section 35: NW/4

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

S. J. Okerson
District Superintendent

Set for August 20

June 20, 1980

File: SJO-986.51 X WF-771

Re: Waiver Consent
Conversion to Salt Water Disposal
State "E" Tract 18 Well No. 22
Lea County, New Mexico

Case 7009

Cities Service Company
P. O. Box 1919
Midland, TX 79702

Gentlemen:

Amoco Production Company requests your approval as an offset operator to convert our State "E" Tract 18 Well No. 22 to a salt water disposal well. The subject well is located 1650' FNL & 1650' FEL, Section 2, T-17-S, R-36-E, Lea County, New Mexico.

The subject well will be deepened to a TD of 9,000'. Water will be disposed of in the open hole Abo interval 8,330'-9,000'. Attached is a Form C-108, a plat, a well bore sketch and a water analysis test of the produced water to be injected.

We have filed with the NMOCD in Santa Fe an application to dispose of salt water into a porous formation. We request that you approve and return a signed copy of this letter to this office and one to the NMOCD in Santa Fe. Self-addressed envelopes are enclosed.

Yours very truly,

Original Signed by:
S. J. OKERSON

Approved: CITIES SERVICE COMPANY

By: [signature] MANAGER PRODUCTION SOUTHWEST REGION

Date: 6/30/80

Attachments

cc: NMOCD
Hobbs, NM

Mr. E. D. Newman
Houston, TX

S. J. Okerson
District Superintendent

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

393-1781

June 20, 1980

File: SJO-986.51 X WF-774

Re: Application for Salt Water Disposal
State "E" Tract 18 Well No. 22
Lovington Abo Field
Lea County, New Mexico

Case 7009

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

Gentlemen:

Amoco Production Company requests administrative approval to dispose of produced water from the Lovington Abo field into the Abo formation in our State "E" Tract 18 Well No. 22, located 1650' FNL & 1650' FEL, Section 2, T-17-S, R-36-E, Lea County, New Mexico. In accordance with Rule 701-C, we are attaching hereto our "Application to Dispose of Salt Water by Injection Into a Porous Formation". Also attached is a plat, a diagrammatic sketch of the proposed injection well, a water analysis of the produced water to be injected, and a copy of Certified Mail receipts from letters to the offset operators.

State "E" Tract 18 Well No. 22, the proposed injection well, was originally drilled as a producing well in the Lovington Abo Field. Prior to conversion to a disposal well, perforations from 8292' to 8316' will be squeezed with 150 sx Class H cement. We will perforate a one foot interval at approximately 5000' and squeeze 450 sx Class C cement outside the 5½" casing, run a temperature survey to find cement top and then

deepen well to approximately 9000'. Produced water from our State "E" Tract 18 lease will be disposed of in the open hole Abo interval 8330' to 9000' through plastic coated tubing and packer set at approximately 8300'. Water will be injected at a maximum rate of 7500 bbl per day. Our State "E" Tract 18 Well No. 20 is a salt water disposal well approved by Order No. R-5855.

Yours very truly,

B. J. Okerson

cc: NMOCD
P. O. Box 1980
Hobbs, NM 88240

City of Lovington
P. O. Box 1268
Lovington, NM 88260

Mr. E. D. Newman
Houston, TX

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

Case 7009

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR		ADDRESS	
Amoco Production Company		P. O. Box 68 - Hobbs, NM 88240	
LEASE NAME	**WELL NO.**	**FIELD**	**COUNTY**
State "E" Tract 18	22	Lovington Abo	Lea

LOCATION

UNIT LETTER G ; WELL IS LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROM THE East LINE, SECTION 2 TOWNSHIP 17-S RANGE 36-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	270'	275	Surface	Circulated
INTERMEDIATE	9-5/8"	3287'	300	Unknown	Cemented with DV tool at 2106'
LONG STRING	5-1/2"	8330'	835 sx originally will squeeze 450 sx	Approx. 4150'	Temp Survey
TUBING	3-1/2"	Approx. 8331'	NAME, MODEL AND DEPTH OF TUBING PACKER: Guiberson Uni Packer VI - 3-1/2" - 8300'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Abo	8350'	9250'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Internally Coated Tubing	8330' - 9000'	8330' - 9000'

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Producing Well	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

8338' - 8340' 75 sx sloset; 8292' - 8316' 150 sx Class H

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
80'	6800'	9500'

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
6,000	10,000	Closed	Pressure	1650#

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	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

City of Lovington, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Marathon Oil Company - P. O. Box 2409 - Hobbs, NM 88240

Cities Service Company - P. O. Box 1919 - Midland, TX 79702

Getty Oil Company - P. O. Box 730 - Hobbs, NM 88240

Amerada Hess Corporation - P. O. Box 2040 - Tulsa, OK 74102

Phillips Petroleum Company - 4001 Penbrook - Odessa, TX 79701

RECEIVED
JUN
O.C.C.
SANTA FE, NEW MEXICO

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
Yes	Yes	Yes

ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
Yes	No	Yes

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

Bob Davis	Administrative Analyst	June 20, 1980
(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.

Form C-108
Revised 1-1-65

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR		ADDRESS	
Amoco Production Company		P. O. Box 68 - Hobbs, NM 88240	
LEASE NAME	**WELL NO.**	**FIELD**	**COUNTY**
State "E" Tract 18	22	Lovington Abo	Lea

LOCATION

UNIT LETTER G ; WELL IS LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROM THE East LINE, SECTION 2 TOWNSHIP 17-S RANGE 36-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	270'	275	Surface	Circulated
INTERMEDIATE	9-5/8"	3287'	300	Unknown	Cemented with DV tool at 2106'
LONG STRING	5-1/2"	8330'	835 sx originally will squeeze 450 sx	Approx. 4150'	Temp Survey
TUBING	3-1/2"	Approx. 8331'	NAME, MODEL AND DEPTH OF TUBING PACKER: Guiberson Uni Packer VI - 3-1/2" - 8300'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Abo	8350'	9250'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Internally Coated Tubing	8330' - 9000'	8330' - 9000'

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Producing Well	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

8338' - 8340' 75 sx sloset; 8292' - 8316' 150 sx Class H

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
80'	6800'	9500'

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
6,000	10,000	Closed	Pressure	1650#

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	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

City of Lovington, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Marathon Oil Company - P. O. Box 2409 - Hobbs, NM 88240

Cities Service Company - P. O. Box 1919 - Midland, TX 79702

Getty Oil Company - P. O. Box 730 - Hobbs, NM 88240

Amerada Hess Corporation - P. O. Box 2040 - Tulsa, OK 74102

Phillips Petroleum Company - 4001 Penbrook - Odessa, TX 79701

RECEIVED
JUN 25 1980
OIL CONSERVATION DIVISION
SANTA FE

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
	Yes	Yes	Yes
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	**PLAT OF AREA**	**ELECTRICAL LOG**	**DIAGRAMMATIC SKETCH OF WELL**
	Yes	No	Yes

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

Bob Davis	Administrative Analyst	June 20, 1980
(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.

Form C-108
Revised 1-1-65

Case 7009

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR		ADDRESS	
Amoco Production Company		P. O. Box 68 - Hobbs, NM 88240	
LEASE NAME	**WELL NO.**	**FIELD**	**COUNTY**
State "E" Tract 18	22	Lovington Abo	Lea

LOCATION

UNIT LETTER G ; WELL IS LOCATED 1650 FEET FROM THE North LINE AND 1650 FEET FROM THE East LINE, SECTION 2 TOWNSHIP 17-S RANGE 36-E NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	270'	275	Surface	Circulated
INTERMEDIATE	9-5/8"	3287'	300	Unknown	Cemented with DV tool at 2106'
LONG STRING	5-1/2"	8330'	835 sx originally will squeeze 450 sx	Approx. 4150'	Temp Survey
TUBING	3-1/2"	Approx. 8331'	NAME, MODEL AND DEPTH OF TUBING PACKER: Guiberson Uni Packer VI - 3-1/2" - 8300'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Abo	8350'	9250'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Internally Coated Tubing	8330' - 9000'	8330' - 9000'

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Producing Well	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

8338' - 8340' 75 sx sloset; 8292' - 8316' 150 sx Class H

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
80'	6800'	9500'

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
6,000	10,000	Closed	Pressure	1650#

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	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	Yes

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

City of Lovington, New Mexico

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Marathon Oil Company - P. O. Box 2409 - Hobbs, NM 88240

Cities Service Company - P. O. Box 1919 - Midland, TX 79702

Getty Oil Company - P. O. Box 730 - Hobbs, NM 88240

Amerada Hess Corporation - P. O. Box 2040 - Tulsa, OK 74102

Phillips Petroleum Company - 4001 Penbrook - Odessa, TX 79701

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JUN 23 1980
OIL CONSERVATION DIVISION
SANTA FE

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
	Yes	Yes	Yes
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	**PLAT OF AREA**	**ELECTRICAL LOG**	**DIAGRAMMATIC SKETCH OF WELL**
	Yes	No	Yes

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

B. L. Davis	Administrative Analyst	June 20, 1980
(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.

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

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

All distances must be from the outer boundaries of the Section.

Operator: Amoco Production Company		Lease: State E Tract 18		Well No.: 22
Unit Letter: G	Section: 2	Township: 17-S	Range: 36-E	County: Lea
Actual Footage Location of Well: 1650 feet from the North line and 1650 feet from the East line				Dedicated Acreage: Acres
Ground Level Elev.	Producing Formation	Pool		

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

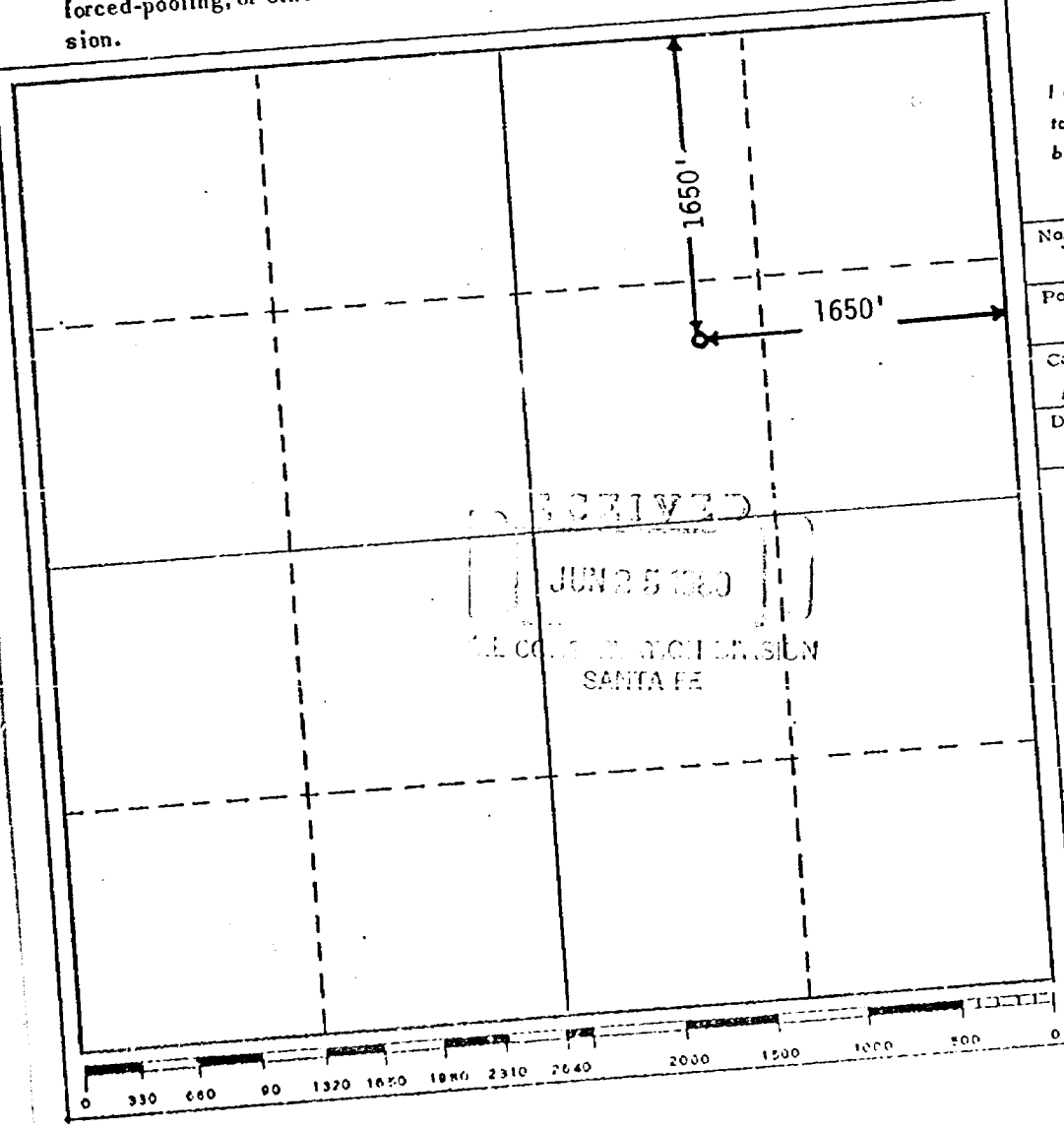
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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: Bob Laws

Position: Admin. Analyst

Company: Amoco Production Company

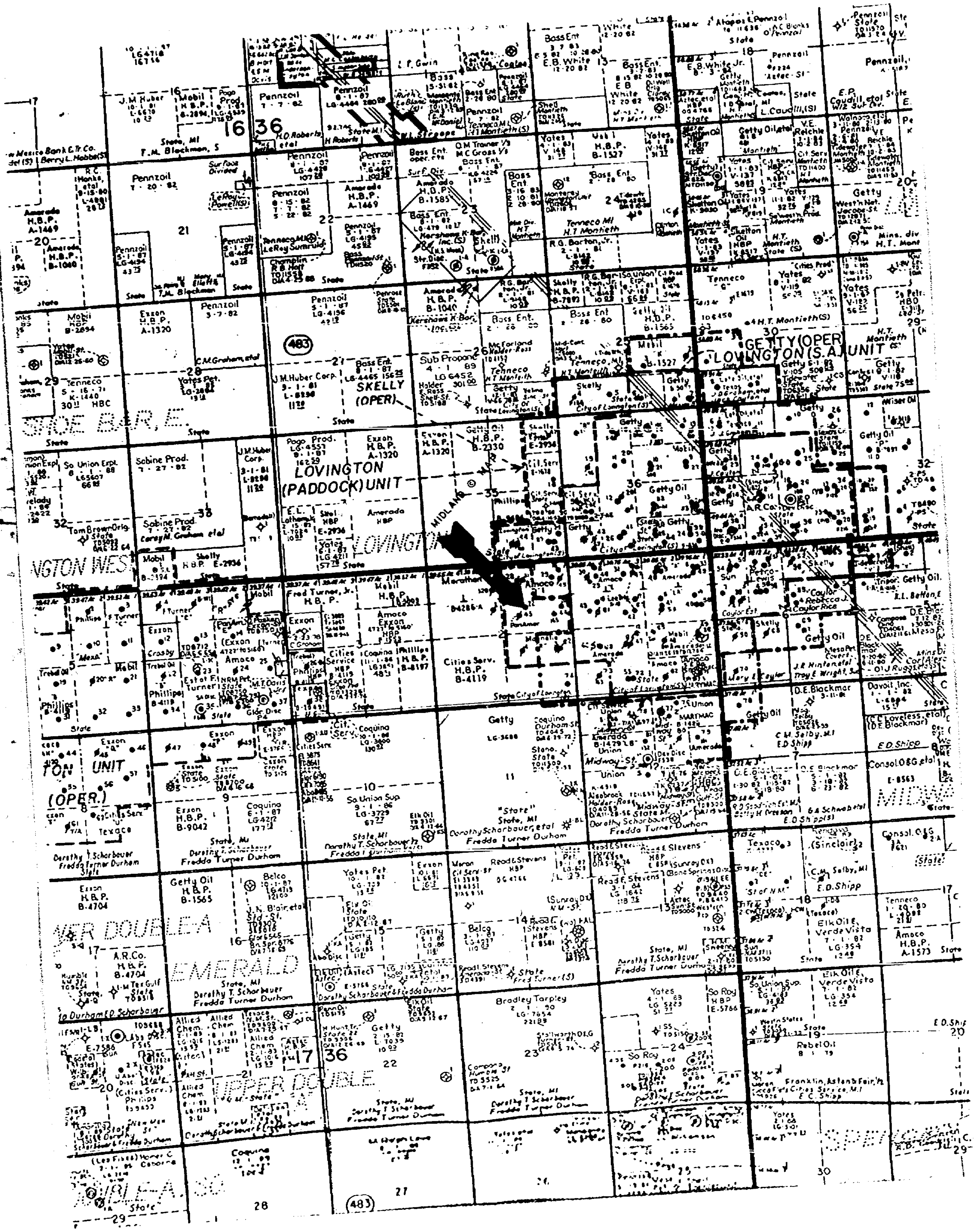
Date: 6-20-80

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

Registered Professional Engineer and/or Land Surveyor

Certificate No.


LOVINGTON (PADDOCK) UNIT
GETTY (OPER) LOVINGTON (S.A.) UNIT
SKELLY (OPER)
MIDLAND
EMERALD
UPPER DOUBLE
Pennzoil
Amerada H.B.P.
Exxon H.B.P. A-1320
Getty Oil
State
Stato City of Lovington
Dorothy T. Scharbauer
Fredda Turner Durham
Bradley Tarpley
Cities Serv. H.B.P. B-4119
Sabine Prod.
Tom Brown Drlg.
Sub Propane 4-1-89 LG 6452
Holder

Amoco Production Company

ENGINEERING CHART

SHEET NO. OF

FILE

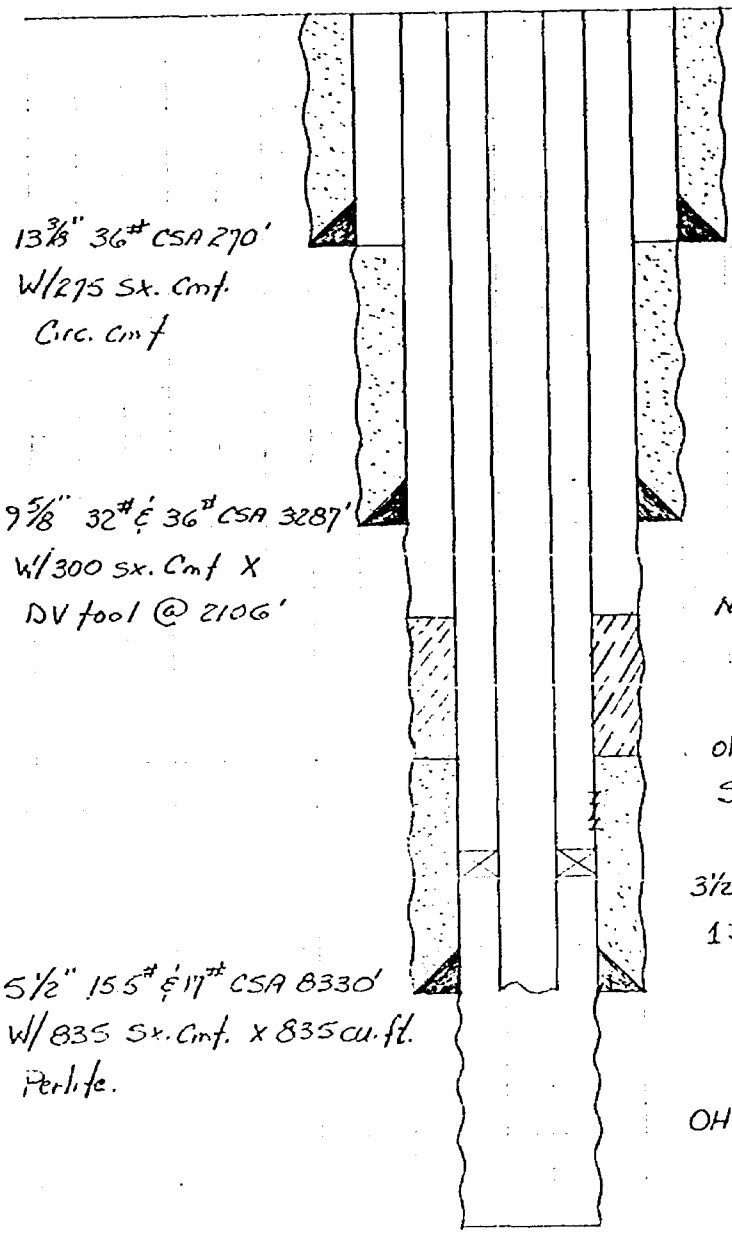
APPN

DATE

BY

SUBJECT

STATE 'E' TRACT 18 WELL #22
LOVINGTON ABO FIELD
LEA COUNTY, NEW MEXICO
PROPOSED WELLBORE ARRANGEMENT
FOR DISPOSAL



Form 371 2-71

Amoco Production Company

RESEARCH CENTER WATER ANALYSIS

T.S. or File No. S-38-11
Lab. No. T-24790
Field No.
API Well No.

LOCATION SAMPLED: Division Houston | District | Area Levelland
Operator (Plant) Amoco | Well No. 15 | Lease Lovington Abo
State (Province) New Mexico | County (Parish)
Twp. 17 S Rng. 36 E Sec. 1 | Quarter (Lsd.) | Other (Meridian)
Wildcat ( ) Field Well (X) Field name
Sample collected from wellhead | Date 9-1-78 | Sample collected by
Interval sampled to | Interval name Abo
Recovery

Form 97 transmitted by V. E. Staley | Date 9-8-78 | Authorized by

ORGANIC CONSTITUENTS in mg/l

	BOTTOM	MIDDLE	TOP	MUD	
Benzene					
Toluene					
HC Gases					

DESCRIPTION OF SAMPLE

Sample used for detailed analyses
Date received
Condition as received
Color
Odor
Suspended solids
Bottom sediment
Oil or fluorescence

QUALITY OF SAMPLE

Chloride ion mg/l:	BOTTOM	MIDDLE	TOP

COMMENTS:

CONVENTIONAL MAJOR ION ANALYSIS

			Major Ions mg/l	% of Total Major Ions	Reaction Value meq/l	% of Total Reaction Value
CATIONS	Sodium	Na^+	14,395	31.70	626.17	40.71
	Calcium	Ca^{++}	2,040	4.49	101.80	6.62
	Magnesium	Mg^{++}	500	1.10	41.10	2.67
	Potassium	K^+				
ANIONS	Chloride	Cl^-	24,600	54.18	693.72	45.10
	Bicarbonate	HCO_3^-	1,170	2.58	19.19	1.25
	Sulfate	SO_4^{--}	2,700	5.95	56.16	3.65
	Carbonate	CO_3^{--}	0	0	0	0
	TOTAL		45,405			

Total solids by evaporation 45,710 mg/l
NaCl resistivity equivalent (Dunlap) 53,599 mg/l
Resistivity .147 ohm-meters at 77 °F
pH 7.1 Specific gravity 1.034 at 75 °F
Ryznar stability index (2pHs-pH) at °F

OTHER IONS AND DISSOLVED SOLIDS

CATIONS	mg/l	ANIONS	mg/l	OTHERS	mg/l

REMARKS AND CONCLUSIONS:

RECEIVED
HOBBS DISTRICT
OCT 5 1978

	JS	
	DAS	
1	DE	
	AF	
	DS	
	SE	
	AS	
2	RMS	
	FJL	RJR
3	File	

Need copy to Dave Boatwright Houston

CC: W. V. Grisham
A. R. Reed
A. H. Green
G. W. Schmidt
David Boatwright

Analyst Bruce Barnes Date 10-2-78

Water charts on back ( )

Form 55 4-71

RECEIVED
JUN 25 1980
OIL CONSERVATION DIVISION
SANTA FE

P08 [illegible]

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Maratho Oil Co.
STREET AND NO.
P.O. Box 2409
P.O. STATE AND ZIP CODE
Hobbs, N.M.

POSTAGE $
CERTIFIED FEE ¢
SPECIAL DELIVERY ¢
RESTRICTED DELIVERY ¢
OPTIONAL SERVICES
RETURN RECEIPT SERVICE
SHOW TO WHOM AND DATE DELIVERED ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY ¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY ¢
CONSULT POSTMASTER FOR FEES
TOTAL POSTAGE AND FEES $
POSTMARK OR DATE

JUN 1980

PS Form 3800, Apr. 1976

P08 0839516

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Amerada Hess Corp.
STREET AND NO.
P.O. Box 2040
P.O. STATE AND ZIP CODE
Tulsa, OK.

POSTAGE $
CERTIFIED FEE ¢
SPECIAL DELIVERY ¢
RESTRICTED DELIVERY ¢
OPTIONAL SERVICES
RETURN RECEIPT SERVICE
SHOW TO WHOM AND DATE DELIVERED ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY ¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY ¢
CONSULT POSTMASTER FOR FEES
TOTAL POSTAGE AND FEES $
POSTMARK OR DATE

JUN 1980

PS Form 3800, Apr. 1976

P08 [illegible]

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
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(See Reverse)

SENT TO
Cities Service Co.
STREET AND NO.
P.O. Box 1919
P.O. STATE AND ZIP CODE
Midland, Tx.

POSTAGE $
CERTIFIED FEE ¢
SPECIAL DELIVERY ¢
RESTRICTED DELIVERY ¢
OPTIONAL SERVICES
RETURN RECEIPT SERVICE
SHOW TO WHOM AND DATE DELIVERED ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY ¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY ¢
CONSULT POSTMASTER FOR FEES
TOTAL POSTAGE AND FEES $
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JUN 1980

PS Form 3800, Apr. 1976

P08 [illegible]

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NOT FOR INTERNATIONAL MAIL
(See Reverse)

SENT TO
Getty Oil Co.
STREET AND NO.
P.O. Box 730
P.O. STATE AND ZIP CODE
Hobbs, N.M.

POSTAGE $
CERTIFIED FEE ¢
SPECIAL DELIVERY ¢
RESTRICTED DELIVERY ¢
OPTIONAL SERVICES
RETURN RECEIPT SERVICE
SHOW TO WHOM AND DATE DELIVERED ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY ¢
SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY ¢
SHOW TO WHOM, DATE AND ADDRESS OF DELIVERY WITH RESTRICTED DELIVERY ¢
CONSULT POSTMASTER FOR FEES
TOTAL POSTAGE AND FEES $
POSTMARK OR DATE

JUN 1980

PS Form 3800, Apr. 1976

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

S. J. Okerson
District Superintendent

June 20, 1980

File: SJO-986.51 X WF-770

Re: Waiver Consent
Conversion to Salt Water Disposal
State "E" Tract 18 Well No. 22
Lea County, New Mexico

Marathon Oil Company
P. O. Box 2409
Hobbs, NM 88240

Gentlemen:

Amoco Production Company requests your approval as an offset operator to convert our State "E" Tract 18 Well No. 22 to a salt water disposal well. The subject well is located 1650' FNL & 1650' FEL, Section 2, T-17-S, R-36-E, Lea County, New Mexico.

The subject well will be deepened to a TD of 9,000'. Water will be disposed of in the open hole Abo interval 8,330'-9,000'. Attached is a Form C-108, a plat, a well bore sketch and a water analysis test of the produced water to be injected.

We have filed with the NMOCD in Santa Fe an application to dispose of salt water into a porous formation. We request that you approve and return a signed copy of this letter to this office and one to the NMOCD in Santa Fe. Self-addressed envelopes are enclosed.

Yours very truly,

Original Signed by:
S. J. OKERSON

Approved: MARATHON OIL
By: Clifford A. Mullin
Date: 7-10-80

Attachments

cc: NMOCD
Hobbs, NM

Mr. E. D. Newman
Houston, TX

OIL CONSERVATION DIVISION
DISTRICT I

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

DATE June 25, 1980

RE: Proposed MC
Proposed DHC
Proposed NSL
Proposed NSP
Proposed SWD X
Proposed WFX
Proposed PMX

RECEIVED
JUN 30 1980
OIL CONSERVATION DIVISION
SANTA FE

Gentlemen:

I have examined the application for the

Amoco Production Co. State "E" Tr. 18 No. 22-G 2-17-36
Operator Lease and Well No. Unit, S - T - R

and my recommendations are as follows:

Within ½ mile of production & will take a hearing.---J.S.

Yours very truly,

/mc

ROUGH

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7009

Order No. R- 6461

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

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on August 20, 1980, at Santa Fe, New Mexico, before Examiner Richard L. Stamets

NOW, on this _____ day of August, 1980, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Amoco Production Company, is the owner and operator of the State "E" Tract 18 Well No. 22, located in Unit G of Section 2, Township 17 South, Range 36 East, NMPM, Lovington-Abo Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Abo formation, with injection into the open hole interval from approximately 8330 feet to 9000 feet.

(4) That the injection should be accomplished through 3 1/2-inch plastic lined tubing installed in a packer set at approximately 8300 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge or approved leak detection device should be attached to the annulus in order

to determine leakage in the casing, tubing, or packer.

(5) That prior to injection the applicant should recement the 5½ casing in said well from a depth of approximately 5400 feet to 5000 feet, obtain a formation water analysis at the injection interval, and file such analysis with the Director of the Division.

See Under

(8) That the operator should notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment so that the same may be inspected.

(9) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(10) 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 State "E" Tract 18 Well No.22, located in Unit G of Section 2, Township 17 South, Range 36 East, NMPM, Lovington-Abo Pool, Lea County, New Mexico, to dispose of produced salt water into the Abo formation, injection to be accomplished through 3 ½-inch tubing installed in a packer set at approximately 8300 feet, with injection into the Open hole interval from approximately 8330 feet to 9000 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 shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

Provided Further,
That prior to injection the applicant shall recement the 5½ casing in said well from a depth of approximately 5400 feet to 3000 feet, obtain a formation water analysis at the injection interval, and file such analysis with the Director of the Division.

See Under

(5) That the operator shall immediately notify the supervisor of the Division's Hobbs district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

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

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

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

8330
1666.0