

Case No.

7348

Application

Transcripts.

Small Exhibits

ETC



BRUCE KING
GOVERNOR
LARRY KEHOE
SENATE

October 1, 1981

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
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Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 7348
ORDER NO. R-6786

Applicant:

Apollo Oil 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	<u> x </u>
Artesia OCD	<u> x </u>
Aztec OCD	<u> </u>

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. 7348
Order No. R-6786

APPLICATION OF APOLLO OIL 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 September 9, 1981, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 30th day of September, 1981, 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, Apollo Oil Company, is the owner and operator of the Lovington State 9 Well No. 2, located in Unit N of Section 9, Township 17 South, Range 37 East, NMPM, Midway-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 perforated interval from approximately 8934 feet to 8968 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic lined tubing installed in a packer set at approximately 8750 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 the injection well or system should be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1765 psi.

(6) 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.

(7) 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.

(8) That disposal should be limited to waters produced from the Abo formation unless additional evidence has been submitted as to compatibility of water from other formations, and the Division Director has approved the disposal of such other waters in the subject well.

(9) 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, Apollo Oil Company, is hereby authorized to utilize its Lovington State 9 Well No. 2, located in Unit N of Section 9, Township 17 South, Range 37 East, NMPN, Midway-Abo Pool, Lea County, New Mexico, to dispose of produced salt water into the Abo formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 8750 feet, with injection into the perforated interval from approximately 8834 feet to 8968 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.

(2) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1765 psi.

-3-

Case No. 7348

Order No. R-6706

(3) 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.

(4) 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.

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

(6) That disposal into the subject well shall be limited to water produced from the Abo formation, unless the Division Director has approved the disposal of waters produced from other formations upon receipt of evidence establishing the compatibility of such waters with the native waters of the Abo formation.

(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

pd/

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

9 September 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Apollo Oil Com-
pany for salt water disposal,
Lea County, New Mexico.

CASE
7348

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
Division:

W. Perry Pearce, Esq.
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

W. Thomas Kellahin, Esq.
KELLAHIN & KELLAHIN
500 Don Gaspar
Santa Fe, New Mexico 87501

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I N D E X

ALAN RALSTON

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MR. NUTTER: The hearing will come to order, please.

We'll call next Case Number 7348.

MR. PEARCE: Application of Apollo Oil Company for salt water disposal. Lea County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness to be sworn.

(Witness sworn.)

ALAN RALSTON

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Ralson, would you please state your name and occupation?

A I am Alan Ralston. I'm owner and operator of Apollo Oil Company.

Q Have you previously testified before the Division, Mr. Ralston?

A Yes, sir, I have.

1
2 Q Have you made a study of the facts sur-
3 rounding this particular application for salt water disposal?

4 A Yes, sir, I have.

5 Q And you have caused to be filed with the
6 Commission an application and exhibits pursuant to Division
7 order?

8 A Yes, sir.

9 Q What are you seeking to accomplish by
10 this application, Mr. Ralston?

11 A Open salt water disposal.

12 Q Into what formation, sir?

13 A Which one are you on?

14 Q I'm on the Lovington State 9.

15 A Into the Abo.

16 Q All right, sir.

17 MR. KELLAHIN: We tender Mr. Ralston as
18 a practical oil and gas operator.

19 MR. NUTTER: Mr. Ralston is so qualified.

20 MR. KELLAHIN: Mr. Nutter, we have marked
21 and presented before you as exhibits for this hearing the
22 same packet of application forms and exhibits that were pre-
23 viously filed with the Commission as of letter dated August
24 14th, 1981.

25 In addition, I wish to submit to you

1
2 copies of return receipts, showing that the surface owner
3 and all offset operators in the area have received the re-
4 quired notice.

5 Q All right, Mr. Ralston, let's turn to
6 the packet of exhibits, and if you'll turn to what has been
7 marked as Exhibit Number One, which is the map, the disposal
8 well is identified in Section Number 9, I believe it is, the
9 Lowington State 9 Well No. 2 in Unit N of Section 9. Is that
10 the disposal well, sir?

11 A Just a minute, I'm not seeing too well.
12 I left my glasses in the car.

13 That's correct.

14 Q All right. Have you caused to be made
15 a search of all wells within a half-mile radius of the proposed
16 location?

17 A Yes, I have.

18 Q And if you will turn to Exhibit Number
19 Two, is that a tabular summary of the well information for
20 those wells within that radius?

21 A Yes, sir.

22 Q Have you had an opportunity to examine
23 that information?

24 A Yes, sir.

25 Q In your opinion, Mr. Ralston, are all

1

6

2 those wells completed or plugged in such a way that water
3 disposed of in the Bough C formation in the disposal well
4 would not migrate up through any of these wells to contaminate
5 fresh water sources?

6 A I am certain that these wells are cemented
7 properly so that you won't have any contamination in the
8 fresh water zones.

9 And plugged in accordance with Oil Conservation
10 Commission rules and regulations.

11 Q All right, sir, let's turn to Exhibit
12 Number Three in the packet of exhibits, and have you generally
13 tell me the type of operation you propose for this disposal
14 well in terms of the volumes, pressures, and general information.
15

16 A The volume I expect to be around \$1000
17 a day -- 1000 --

18 Q Barrels.

19 A -- barrels a day. It will start off
20 smaller than that and it may reach 2500 barrels a day.

21 Q What's the source of this water, Mr.
22 Ralston?

23 A The water source will be surrounding
24 wells in -- in this immediate area.

25 Q Are there currently any other disposal

1

7

2 wells that meet the needs of these operators for a disposal
3 system?

4 A There is a closed injection system
5 belonging to Rice Engineering north of this well approximately
6 five miles.

7 MR. NUTTER: Well, Mr. Ralston, will
8 this disposal well be used for water produced from your own
9 wells or is this going to be open to other operators?

10 A Yes, sir. I have a producing well off-
11 set this well and I will also dispose of the water from it.

12 Q In addition to your own well, Mr. Ralston,
13 will you take water from other operators to use in this
14 disposal well?

15 A Yes, sir.

16 Q All right.

17 A David Faskin is drilling a deeper zone
18 to the northwest, and there's drilling to the south of it in
19 the Devonian, and I will probably approach them about taking
20 their water also.

21 MR. NUTTER: Now how many wells do you
22 operate in the area?

23 A Right there in that area I only operate
24 two wells.

25 MR. NUTTER: Okay, that's the well to

1
2 the immediate west, the No. 1, and that →

3 A To the south.

4 MR. NUTTER: To the south.

5 A The No. 1 is plugged, the Levers State
6 9-1 is plugged.

7 MR. NUTTER: Okay.

8 A And the 9-2 is the proposed disposal
9 well, and we have a well in 16, Well No. 1, Section 16.

10 MR. NUTTER: That's the old Consolidated
11 well?

12 A Yes, sir.

13 MR. NUTTER: Uh-huh.

14 A That's the one I'm producing currently.

15 MR. NUTTER: That's the only one that
16 you're producing at the present time?

17 A Yes, sir.

18 MR. NUTTER: Okay. How much water does
19 it make?

20 A It doesn't make but about 20 barrel a
21 day but we will give it some additional stimulation when we
22 have facilities to take care of the water.

23 MR. NUTTER: I see, you figure you can
24 make more oil but you have to have some place to put the water
25 first.

1

2

A Yes, sir.

3

MR. NUTTER: Okay.

4

Q Mr. Ralson, are you aware of the Division

5

pressure limitation requirement so that you cannot inject at

6

a surface pressure greater than .2 of one percent per foot of

7

depth for this disposal well?

8

A I wasn't aware of that. The last meeting

9

I was in on, they gave me a pressure of 300 pounds surface

10

and -- but this well will be injecting at 8800 feet, so--

11

Q You mean 8800 feet?

12

A Right.

13

Q That would be a pressure limitation of

14

about 1740 pounds at the surface?

15

A Yes, sir.

16

Q In your opinion will the well be capable

17

of use as a disposal well with that limitation?

18

A Yes, sir.

19

Q Let's go on to Exhibit Number Four, if

20

you please. This is a tabulation of the injection interval.

21

Is the information contained on that exhibit true and accurate?

22

A Yes, sir.

23

Q All right, sir, let's go then on to

24

Exhibit Number Five, which is a portion of the well log for

25

the disposal well, and if you'll skip that and go on to Exhibit

Number Six, Exhibit Six would be the schematic for the well.

Is this the way the well is currently completed or is this the recommended proposal?

A This is the recommended proposal.

Q Tell us a little bit about the Lovington 9 State No. 2 Well, Mr. Ralston.

A We've tried to produce it. It has a very, very small, just very minimal bottom hole pressure and we can't produce it at present economically. It has to be pumped. So we propose to change to a salt water disposal well with these type installations in the wellbore.

Q What causes you to believe that this well is suitable for disposal?

A We -- this Abo formation is very porous and it will -- you can give it an acid job, or the last acid job I gave it, I flushed it with about 300 barrels and I never got any surface pressure.

Q All right, sir, let's go on to Exhibit Number Seven, which is some well data from the disposal well. It indicates that this well was originally drilled as a producing well on June 8th of '63.

A Yes, sir.

Q And it shows that there were certain perforations in this well. In your opinion is the method of

1
2 completion as a disposal well adequate to insure that disposal
3 fluids will remain confined to the disposal formation?

4 A Yes, sir.

5 Q All right, sir, and Exhibit Number Eight
6 is two other wellbore schematics. What are these of?

7 A This is offset well to the east Gulf Oil
8 Company plugged in '71.

9 Q All right, sir, and what's the next one?

10 A It's the Lovington State 9-1 to the west
11 that Supron Energy plugged in '76.

12 Q In your opinion are both of these wells
13 plugged in such a way that they will not serve as sources to
14 allow water to migrate up into shallower formations?

15 A They most certainly are.

16 Q All right, sir, let's go to Exhibit
17 Number Nine. What is Exhibit Number Nine?

18 A It's a water analysis.

19 Q All right, sir. You've identified in the
20 area certain sources of fresh water?

21 A Yes. Yes, sir.

22 Q And this is a tabulation of -- on those
23 locations and the water analysis for each of those wells?

24 A Right.

25 Q All right, Exhibit Number Ten, Mr. Ralston,

1
2 are you aware of any open faults or other characteristics in
3 this area that will cause the disposal fluids to migrate up
4 into the drinking water sources?

5 A No, sir.

6 Q And Exhibit Eleven is a tabulation of
7 the surface owner and offset lease operators within a half
8 mile?

9 A Yes, sir.

10 Q In your opinion, Mr. Ralston, will approval
11 of this application be in the best interests of conservation,
12 prevention of waste, and the protection of correlative rights?

13 A Yes, sir.

14 Q And were Exhibits One through Eleven
15 prepared by you or compiled under your direction and super-
16 vision?

17 A Yes, sir.

18 MR. KELLAHIN: We move the introduction
19 of Exhibits One through Eleven.

20 MR. NUTTER: Exhibits One through Eleven
21 will be admitted in evidence.

22
23 CROSS EXAMINATION

24 BY MR. NUTTER:

25 Q Mr. Ralston, referring to your Exhibit

1
2 Number Three, now, item four there, where it says source of
3 injection fluid, you said the source would be producing leases
4 in the area.

5 Now, this would be -- this exhibit is
6 given in response to the data required by item number seven
7 on Form C-108, Roman section VII, line -- item four says,
8 give the sources and appropriate analysis of injection fluid
9 and compatibility with the receiving formation, if other than
10 reinjected produced water.

11 Now, the intent of that is to get the
12 analysis and know the compatibility of the water if it's pro-
13 duced from a formation other than the injection zone.

14 Now, your well to the immediate south is
15 an Abo well, is it not?

16 A Yes, sir.

17 Q And you're going to be disposing into
18 the Abo.

19 A Yes, sir.

20 Q All right, you mentioned that you might
21 also be disposing of water produced by other operators, and
22 you specifically mentioned that someone was drilling to the
23 Devonian in the area.

24 A Yes, sir.

25 Q Now, you haven't given us any analysis

1
2 of water from the Devonian and its compatibility to the form-
3 ation waters in the Abo, so I think this application today
4 would be limited to disposal of Abo water in the Abo formation,
5 and if you expanded it later, we'd have to have that informa-
6 tion on the compatibility of any Devonian or other formation
7 waters.

8 A Very well.

9 Q Native waters in the Abo. And that would
10 also apply to Exhibit Three, your item B, analysis of forma-
11 tion fluid. I don't think an analysis of formation fluids
12 is necessary if it's coming from that one formation and going
13 back into the formation.

14 A Very well.

15 Q Okay, then with respect to Exhibit Number
16 Six, as compared to Exhibit Number something -- okay, Exhibit
17 Number Seven, now Exhibit Number Seven indicates that you
18 got 10-3/4 in the disposal well at 295 feet with cement cir-
19 culated. Okay, that jibes with Exhibit Six, the schematic
20 diagram.

21 It indicates that you've got 7-inch
22 casing at 5550 with 300 sacks, 350 sacks.

23 A Correct.

24 Q Now, where is the top of the cement on
25 that 7-inch pipe? Is that the 2270 that's calculated on Ex-

1
2 hibit Number Seven?

3 A Yes, sir.

4 Q Or would that be the cement top of the
5 4-1/2 inch, as indicated by Exhibit Number Six?

6 MR. KELLAHIN: Do you see what he's
7 looking at?

8 A The 4-1/2 inch is at 2270. The 7-inch.
9 it doesn't indicate the top on the 7-inch.

10 Q Could you get the top of cement on the
11 7-inch and send that information to us?

12 A Yes, sir.

13 Q Okay, also Exhibit Number Seven indi-
14 cates that the 4-1/2 inch casing is a liner going from 5350
15 to 97 and cemented with 700 sacks circulated. Now, the
16 schematic diagram on Exhibit Six indicates that that 4-1/2
17 goes all the way to the surface, so would you know ~~otherwise~~
18 whether --

19 A I know --

20 Q -- it's a liner or a full string of
21 casing?

22 A -- it's a full string of casing.

23 Q So this would be wrong here on Exhibit
24 Number Seven, then.

25 A Right.

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Q It says 4-1/2 from 5350 to 9090, then.

A No, it isn't. It's from surface to 9090.

Q Okay, so if we scratch out on Exhibit Seven, if we scratch out the words "at 5350 to" that would read 4-1/2 casing to 9090 with 700 sacks circulated.

A Right.

Q But then that doesn't match with the information that's indicated on Exhibit Six that the top of the cement is at 20 -- 2270, so if you can clarify where the top of cement is on the 7-inch and also on the 4-1/2 inch.

A Okay. I'll --

Q And let us know about that.

A -- research my records and if that doesn't satisfy me, then I'll run a cement bond log on it.

Q You didn't drill this well, did you?

A No, sir.

Q So maybe the records are somewhat confused.

Okay, now on your schematic on Exhibit Six, you state that this would be 2-3/8ths inch plastic tubing. You mean plastic --

A Plastic lined.

Q It should be plastic lined. It would be steel tubing.

1

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A Yes, sir.

3

Q Steel tubing with plastic lining. And

4

then the annulus, Mr. Ralston, would be treated in what manner?

5

A The annulus would be loaded with packer

6

fluid with a gauge.

7

Q It would be loaded with some sort of

8

inert fluid, there.

9

A Right.

10

Q With a gauge. Okay.

11

And you anticipate your maximum injection

12

pressure is going to be about 800 psi.

13

A Yes, sir.

14

Q And the .2 of a pound rule would allow

15

you 1766, so you'd be well within that.

16

A Yes, sir.

17

MR. NUTTER: Are there any further

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questions of Mr. Ralston? He may be excused.

19

Do you have anything further, Mr. Kella-

20

hin?

21

MR. KELLAHIN: No, sir.

22

MR. NUTTER: Does anyone have anything

23

they wish to offer in Case Number 7348?

24

We'll take the case under advisement.

25

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2948 heard by me on 9/9 1987.

[Signature] Examiner
Oil Conservation Division

SALLY W. BOYD, C.S.R.

Rt. 1 Box 190-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

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

9 September 1981

EXAMINER HEARING

IN THE MATTER OF:

Application of Apollo Oil Com-
pany for salt water disposal,
Lea County, New Mexico.

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BEFORE: Daniel S. Nutter

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I N D E X

ALAN RALSTON

Direct Examination by Mr. Kellahin

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Cross Examination by Mr. Wutter

12

E X H I B I T S

Applicant Exhibit One, Map

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Applicant Exhibit Two, Tabulation

5

Applicant Exhibit Three, Data

6

Applicant Exhibit Four, Tabulation

9

Applicant Exhibit Five, Log

9

Applicant Exhibit Six, Schematic

10

Applicant Exhibit Seven, Well Data

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Applicant Exhibit Eight, Schematics

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Applicant Exhibit Nine, Analysis

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Applicant Exhibit Ten, Memo

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Applicant Exhibit Eleven, Tabulation

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MR. PEARCE: Application of Apollo Oil Company for salt water disposal. Lea County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing on behalf of the applicant, and I have one witness to be sworn.

(Witness sworn.)

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Ralston, would you please state your name and occupation?

A I am Alan Ralston. I'm owner and operator of Apollo Oil Company.

Q Have you previously testified before the Division, Mr. Ralston?

A Yes, sir, I have.

Q Have you made a study of the facts surrounding this particular application for salt water disposal?

A Yes, sir, I have.

Q And you have caused to be filed with the Commission an application and exhibits pursuant to Division order?

A Yes, sir.

Q What are you seeking to accomplish by this application, Mr. Ralston?

A Open salt water disposal.

Q Into what formation, sir?

A Which one are you on?

Q I'm on the Lovington State 9.

A Into the Abo.

Q All right, sir.

MR. KELLAHIN: We tender Mr. Ralston as a practical oil and gas operator.

MR. NUTTER: Mr. Ralston is so qualified.

MR. KELLAHIN: Mr. Nutter, we have marked and presented before you as exhibits for this hearing the same packet of application forms and exhibits that were previously filed with the Commission as of letter dated August 14th, 1981.

In addition, I wish to submit to you

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2 copies of return receipts, showing that the surface owner
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9 Lovington State 9 Well No. 2 in Unit N of Section 9. Is that
10 the disposal well, sir?

11 A Just a minute, I'm not seeing too well.
12 I left my glasses in the car.

13 That's correct.

14 Q All right. Have you caused to be made
15 a search of all wells within a half-mile radius of the proposed
16 location?

17 A Yes, I have.

18 Q And if you will turn to Exhibit Number
19 Two, is that a tabular summary of the well information for
20 those wells within that radius?

21 A Yes, sir.

22 Q Have you had an opportunity to examine
23 that information?

24 A Yes, sir.

25 Q In your opinion, Mr. Ralston, are all

1
2 these wells completed or plugged in such a way that water
3 disposed of in the Bough C formation in the disposal well
4 would not migrate up through any of these wells to contaminate
5 fresh water sources?

6 A I am certain that these wells are cemented
7 properly so that you won't have any contamination in the
8 fresh water zones.

9 And plugged in accordance with Oil Conservation
10 vation Commission rules and regulations.

11 Q All right, sir, let's turn to Exhibit
12 Number Three in the packet of exhibits, and have you generally
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17 a day -- 1000 --

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24 wells in -- in this immediate area.

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wells that meet the needs of these operators for a disposal system?

A There is a closed injection system belonging to Rice Engineering north of this well approximately five miles.

MR. NUTTER: Well, Mr. Ralston, will this disposal well be used for water produced from your own wells or is this going to be open to other operators?

A Yes, sir. I have a producing well offset this well and I will also dispose of the water from it.

Q In addition to your own well, Mr. Ralston, will you take water from other operators to use in this disposal well?

A Yes, sir.

Q All right.

A David Faskin is drilling a deeper zone to the northwest, and there's drilling to the south of it in the Devonian, and I will probably approach them about taking their water also.

MR. NUTTER: Now how many wells do you operate in the area?

A Right there in that area I only operate two wells.

MR. NUTTER: Okay, that's the well to

1
2 the immediate west, the No. 1, and that →

3 A To the south.

4 MR. NUTTER: To the south.

5 A The No. 1 is plugged, the Levers State
6 9-1 is plugged.

7 MR. NUTTER: Okay.

8 A And the 9-2 is the proposed disposal
9 well, and we have a well in 16, Well No. 1, Section 16.

10 MR. NUTTER: That's the old Consolidated
11 well?

12 A Yes, sir.

13 MR. NUTTER: Uh-huh.

14 A That's the one I'm producing currently.

15 MR. NUTTER: That's the only one that
16 you're producing at the present time?

17 A Yes, sir.

18 MR. NUTTER: Okay. How much water does
19 it make?

20 A It doesn't make but about 20 barrel a
21 day but we will give it some additional stimulation when we
22 have facilities to take care of the water.

23 MR. NUTTER: I see, you figure you can
24 make more oil but you have to have some place to put the water
25 first.

1

2

A Yes, sir.

3

MR. NUTTER: Okay.

4

Q Mr. Ralson, are you aware of the Division pressure limitation requirement so that you cannot inject at a surface pressure greater than .2 of one percent per foot of depth for this disposal well?

5

A I wasn't aware of that. The last meeting I was in on, they gave me a pressure of 800 pounds surface and -- but this well will be injecting at 8800 feet, so --

11

Q You mean 8800 feet?

12

A Right.

13

Q That would be a pressure limitation of about 1740 pounds at the surface?

15

A Yes, sir.

16

Q In your opinion will the well be capable of use as a disposal well with that limitation?

18

A Yes, sir.

19

Q Let's go on to Exhibit Number Four, if you please. This is a tabulation of the injection interval. Is the information contained on that exhibit true and accurate?

22

A Yes, sir.

23

Q All right, sir, let's go then on to Exhibit Number Five, which is a portion of the well log for the disposal well, and if you'll skip that and go on to Exhibit

25

Number Six, Exhibit Six would be the schematic for the well.

Is this the way the well is currently completed or is this the recommended proposal?

A This is the recommended proposal.

Q Tell us a little bit about the Lovington 9 State No. 2 Well, Mr. Kalston.

A We've tried to produce it. It has a very, very small, just very minimal bottom hole pressure and we can't produce it at present economically. It has to be pumped. So we propose to change to a salt water disposal well with these type installations in the wellbore.

Q What causes you to believe that this well is suitable for disposal?

A We -- this Abo formation is very porous and it will -- you can give it an acid job, or the last acid job I gave it, I flushed it with about 300 barrels and I never got any surface pressure.

Q All right, sir, let's go on to Exhibit Number Seven, which is some well data from the disposal well. It indicates that this well was originally drilled as a producing well on June 8th of '63.

A Yes, sir.

Q And it shows that there were certain perforations in this well. In your opinion is the method of

1
2 completion as a disposal well adequate to insure that disposal
3 fluids will remain confined to the disposal formation?

4 A Yes, sir.

5 Q All right, sir, and Exhibit Number Eight
6 is two other wellbore schematics. What are these of?

7 A This is offset well to the east Gulf Oil
8 Company plugged in '71.

9 Q All right, sir, and what's the next one?

10 A It's the Lovington State 9-1 to the west
11 that Supron Energy plugged in '76.

12 Q In your opinion are both of these wells
13 plugged in such a way that they will not serve as sources to
14 allow water to migrate up into shallower formations?

15 A They most certainly are.

16 Q All right, sir, let's go to Exhibit
17 Number Nine. What is Exhibit Number Nine?

18 A It's a water analysis.

19 Q All right, sir. You've identified in the
20 area certain sources of fresh water?

21 A Yes. Yes, sir.

22 Q And this is a tabulation of -- on those
23 locations and the water analysis for each of those wells?

24 A Right.

25 Q All right, Exhibit Number Ten, Mr. Ralston,

1
2 are you aware of any open faults or other characteristics in
3 this area that will cause the disposal fluids to migrate up
4 into the drinking water sources?

5 A No, sir.

6 Q And Exhibit Eleven is a tabulation of
7 the surface owner and offset lease operators within a half
8 mile?

9 A Yes, sir.

10 Q In your opinion, Mr. Ralston, will approval
11 of this application be in the best interests of conservation,
12 prevention of waste, and the protection of correlative rights?

13 A Yes, sir.

14 Q And were Exhibits One through Eleven
15 prepared by you or compiled under your direction and super-
16 vision?

17 A Yes, sir.

18 MR. KELLAHIN: We move the introduction
19 of Exhibits One through Eleven.

20 MR. NUTTER: Exhibits One through Eleven
21 will be admitted in evidence.

22
23 CROSS EXAMINATION

24 BY MR. NUTTER:

25 Q Mr. Ralston, referring to your Exhibit

1
2 Number Three, now, item four there, where it says source of
3 injection fluid, you said the source would be producing leases
4 in the area.

5 Now, this would be -- this exhibit is
6 given in response to the data required by item number seven
7 on Form C-108, Roman section VII, line -- item four says,
8 give the sources and appropriate analysis of injection fluid
9 and compatibility with the receiving formation, if other than
10 reinjected produced water.

11 Now, the intent of that is to get the
12 analysis and know the compatibility of the water if it's pro-
13 duced from a formation other than the injection zone.

14 Now, your well to the immediate south is
15 an Abo well, is it not?

16 A Yes, sir.

17 Q And you're going to be disposing into
18 the Abo.

19 A Yes, sir.

20 Q All right, you mentioned that you might
21 also be disposing of water produced by other operators, and
22 you specifically mentioned that someone was drilling to the
23 Devonian in the area.

24 A Yes, sir.

25 Q Now, you haven't given us any analysis

1
2 of water from the Devonian and its compatibility to the form-
3 ation waters in the Abo, so I think this application today
4 would be limited to disposal of Abo water in the Abo formation
5 and if you expanded it later, we'd have to have that informa-
6 tion on the compatibility of any Devonian or other formation
7 waters.

8 A Very well.

9 Q Native waters in the Abo. And that would
10 also apply to Exhibit Three, your item B, analysis of forma-
11 tion fluid. I don't think an analysis of formation fluids
12 is necessary if it's coming from that one formation and going
13 back into the formation.

14 A Very well.

15 Q Okay, then with respect to Exhibit Number
16 Six, as compared to Exhibit Number something -- okay, Exhibit
17 Number Seven, now Exhibit Number Seven indicates that you
18 got 10-3/4 in the disposal well at 295 feet with cement cir-
19 culated. Okay, that jibes with Exhibit Six, the schematic
20 diagram.

21 It indicates that you've got 7-inch
22 casing at 5550 with 300 sacks, 350 sacks.

23 A Correct.

24 Q Now, where is the top of the cement on
25 that 7-inch pipe? Is that the 2270 that's calculated on Ex-

hibit Number Seven?

A Yes, sir.

Q Or would that be the cement top of the 4-1/2 inch, as indicated by Exhibit Number Six?

MR. KELLAHIN: Do you see what he's looking at?

A The 4-1/2 inch is at 2270. The 7-inch, it doesn't indicate the top on the 7-inch.

Q Could you get the top of cement on the 7-inch and send that information to us?

A Yes, sir.

Q Okay, also Exhibit Number Seven indicates that the 4-1/2 inch casing is a liner going from 5350 to 97 and cemented with 700 sacks circulated. Now, the schematic diagram on Exhibit Six indicates that that 4-1/2 goes all the way to the surface, so would you know offhand whether --

A I know --

Q -- it's a liner or a full string of casing?

A -- it's a full string of casing.

Q So this would be wrong here on Exhibit Number Seven, then.

A Right.

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Q It says 4-1/2 from 5350 to 9090, then.

A No, it isn't. It's from surface to 9090.

Q Okay, so if we scratch out on Exhibit Seven, if we scratch out the words "at 5350 to" that would read 4-1/2 casing to 9090 with 700 sacks circulated.

A Right.

Q But then that doesn't match with the information that's indicated on Exhibit Six that the top of the cement is at 20 -- 2270, so if you can clarify where the top of cement is on the 7-inch and also on the 4-1/2 inch.

A Okay. I'll --

Q And let us know about that.

A -- research my records and if that doesn't satisfy me, then I'll run a cement bond log on it.

Q You didn't drill this well, did you?

A No, sir.

Q So maybe the records are somewhat confused.

Okay, now on your schematic on Exhibit Six, you state that this would be 2-3/8ths inch plastic tubing. You mean plastic --

A Plastic lined.

Q It should be plastic lined. It would be steel tubing.

1

2

A Yes, sir.

3

Q Steel tubing with plastic lining. And

4

then the annulus, Mr. Ralston, would be treated in what manner?

5

A The annulus would be loaded with packer

6

fluid with a gauge.

7

Q It would be loaded with some sort of

8

inert fluid, there.

9

A Right.

10

Q With a gauge. Okay.

11

And you anticipate your maximum injection

12

pressure is going to be about 800 psi.

13

A Yes, sir.

14

Q And the .2 of a pound rule would allow

15

you 1766, so you'd be well within that.

16

A Yes, sir.

17

MR. NUTTER: Are there any further

18

questions of Mr. Ralston? He may be excused.

19

Do you have anything further, Mr. Kella-

20

hin?

21

MR. KELLAHIN: No, sir.

22

MR. NUTTER: Does anyone have anything

23

they wish to offer in Case Number 7346?

24

We'll take the case under advisement.

25

(Hearing concluded.)

C E R T I F I C A T E

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

Sally W. Boyd CSR

SALLY W. BOYD, C.S.R.

Rt. 1 Box 195-B
Santa Fe, New Mexico 87501
Phone (505) 455-7409

I do hereby certify that the foregoing is
a true and correct record of the proceedings in
the hearing of Case No. 7348
heard on 9/9 1987.
[Signature] Examiner
Oil Conservation Division

Case 7348

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☒ no
- II. Operator: APOLLO OIL COMPANY
Address: P. O. Box 1737, Hobbs, New Mexico, 88240
Contact party: Alan W. Ralston Phone: 505-397-3554
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: W. Thomas Kellahin Title: Attorney for applicant
Signature: [Signature] Date: August 3, 1981
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.
Exhibit A - Order No. R-6702

BEFORE EXAMINER NUTTER

OIL CONSERVATION DIVISION

Apollo EXHIBIT NO. 1-11
CASE NO. 9348

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

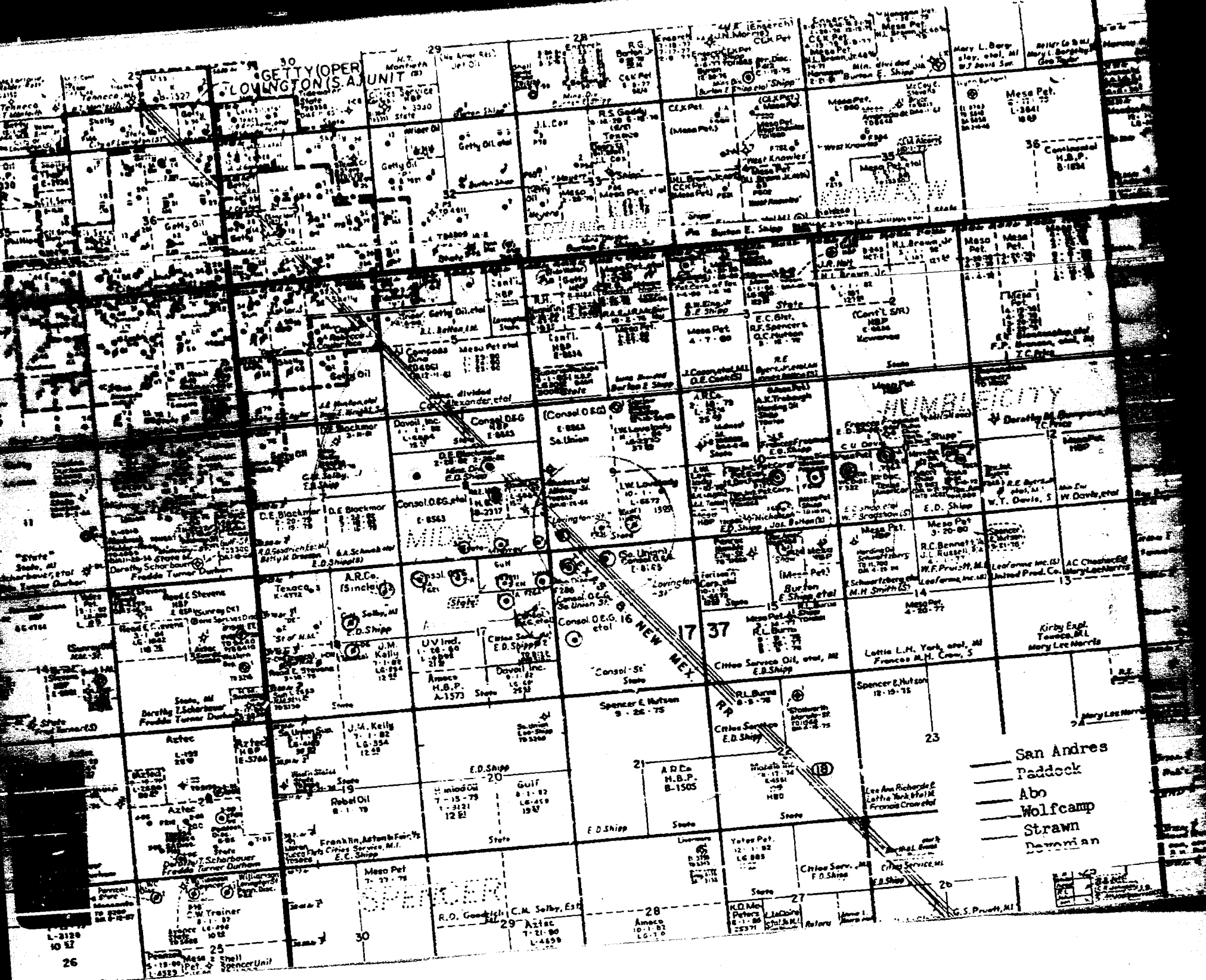
All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.



Tabular Summary
Wells Within One-Half Mile of
Apollo Oil Co. Livingston "9" No. 2

Consolidated Oil & Gas, Inc.	Midway State #1	330' FSL & 330' FTL, Sec. 8, T17S, R37E	Total Depth 8939, Perfs 8688-8856
		Csg: 13" @ 304' w/300 ex. —	Top cmt: surface —
		8 5/8" @ 397' w/350 ex.	Top cmt: 3052 est —
		5 1/2" liner 3835-8936 w/4.5 ex.	Top cmt: 6484 est
Gulf Oil Corp.	Lee State EM #1	660' FSL & 1980' FTL, Sec. 9, T17S, R37E	Total Depth 9035, Perfs 8904-8991, P&A 7/23/71
		Csg: 13 3/8" @ 350' w/286 ex. —	Top cmt: surface —
		8 5/8" @ 432' w/450 ex.	Top cmt: 2556 est —
		5 1/2" @ 903' w/260 ex.	Top cmt: 6895 TS
			Cut & pulled from 5200
Supron Energy Corp.	Livingston 9 State #1	500' FSL & 500' FTL, Sec. 9, T17S, R37E	Total Depth 9217, Perfs 8813-8904, P&A 12/19/76
		Csg: 13 3/8" @ 305' w/250 ex. —	Top cmt: surface —
		8 5/8" @ 354' w/400 ex.	Top cmt: 1976 est —
		4 1/2" @ 921' w/183 ex.	Top cmt: 8415 est
			Cut & pulled from 6175
Consolidated Oil & Gas, Inc.	Southern Union State #1	500' FSL & 660' FTL, Sec. 16, T17S, R37E	Total Depth 9014, Perfs 8861-8898
		Csg: 13 3/8" @ 314' w/350 ex. —	Top cmt: surface —
		8 5/8" @ 354' w/350 ex.	Top cmt: 2825 TS —
		5 1/2" @ 901' w/300 ex.	Top cmt: 7282 est
Apollo Oil Co.	Livingston 16 State #1	440' FSL & 1980' FTL, Sec. 16, T17S, R37E	Total Depth 9048, Perfs 8930-8979
		Csg: 13 3/8" @ 329' w/250 ex. —	Top cmt: surface —
		8 5/8" @ 357' w/400 ex.	Top cmt: 1998 est —
		4 1/2" @ 904' w/300 ex.	Top cmt: 7623 TS

Apollo Oil Company

Exhibit 3

Lovington State 9-2
Salt Water Disposal Well
Section 9
T17S, R37E, NMPM
Lee County, New Mexico

Data on Proposed Operation

1. Proposed average and maximum daily rate and volume of fluids to be injected:

Average daily rate of 1,000 B/D ✓
Maximum daily rate of 2,500 B/D —

2. System is closed.

3. Proposed average and maximum injection pressure:

Average injection pressure: 250 psi ✓
Maximum injection pressure: 800 psi ✓

4. (a) Source of injection fluid: Producing leases in area

- (b) Analysis of formation fluid:

*same as
compat
how about
others*

5. Zone of disposal is productive of oil and gas within one mile of the proposed disposal well.

8834
—
1736.8

Apollo Oil Company

Exhibit 4

Lovington State 9-2
Salt Water Disposal Well
Section 9 *Unit N*
T17S, R37E, S22N
Lea County, New Mexico

Geological Data on Injection Zone

Pool: Midway-Abo

Formation: Abo

Geological Name: Abo

Thickness: at 167 feet

Depth: 8763 top of Abo

Injection Interval: 1 perforation 8866 to 8884 feet
1 perforation 8834 to 8852 feet
2 perforations 8901 to 8968 feet

PAN GEO ATLAS CORP

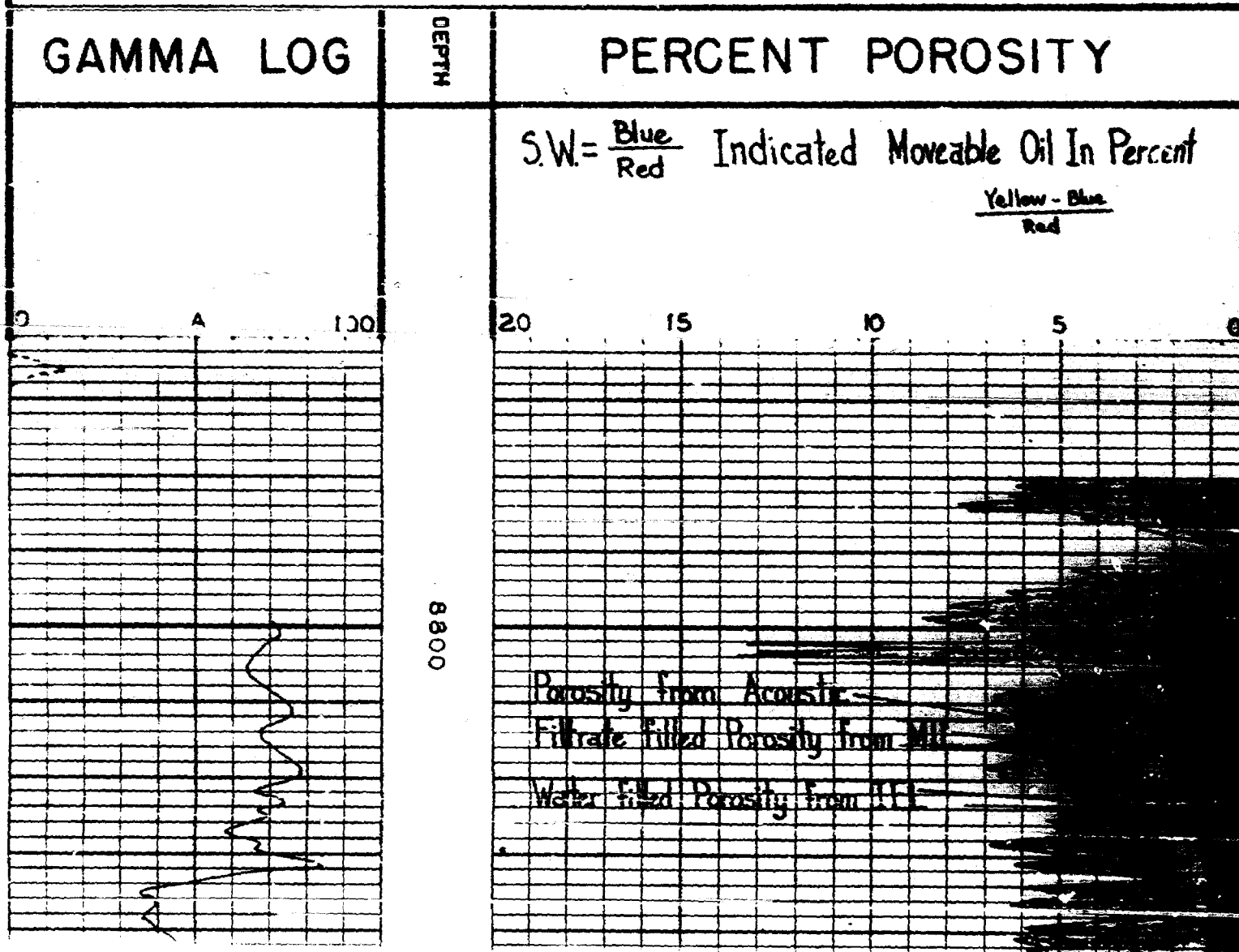
Computed Porosity Log

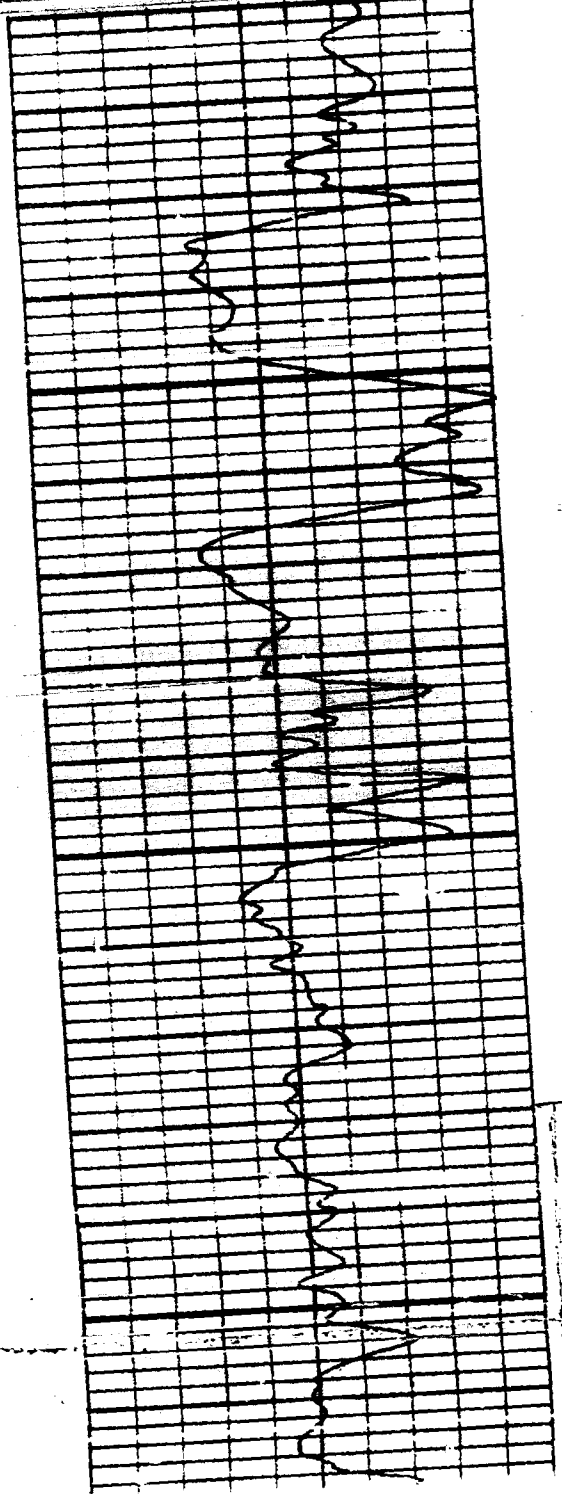
	WELL NO.		COMPANY SOUTHERN UNION PRODUCTION COMPANY	
	WELL		2-9 LOVINGTON STATE	
	FIELD		MIDWAY A80	
	COUNTY		LEA	STATE NEW MEXICO
	LOCATION:		660' FSL & 1980' FWL,	
SEC 9		TWP 17-S	RGE 37-E	Other Services GR/A IEL WLL
Permanent Datum		GROUND LEVEL		Elev. 3774.5
Log Measured from		K.B.		11' Ft. Above Permanent Datum
Drilling Measured from		K.B.		
Date		7/27/63		
Run No.		ONE		
Matrix Velocity		23,000		
Bottom Logged Interval		9000		
Top Logged Interval		8800		
Rw		.04 @ 137°F		
Rmf		.1 @ 137°F		
5 1/2" Size		6 1/4		
Type Fluid in Hole		FRESH WATER		
Density and Viscosity		8.3 29		
pH and Fluid Loss		8.0 *		
Source of Sample		FLOWLINE		
Rm @ Meas. Temp.		8.41 @ 86		
Rmf @ Meas. Temp.		* @ *		
Rmc @ Meas. Temp.		* @ *		
Source of Rmf and Rmc		MEASURED		
Rm @ BHT		5.6 @ 137		
Time Since Circ.		8 HOURS		
Max. Rec. Temp. Deg. F.		137°F		
Equip. No. and Location		EL-25 HOBBS		
Recorded By		CAREY		
Witnessed By		MR. ROBERTS		

THIS LOG IS TO BE USED IN ACCORDANCE WITH THE STANDARD PRACTICE OF THE AMERICAN PETROLEUM INSTITUTE

* INFORMATION NOT AVAILABLE.
 * INFORMATION COULD NOT BE OBTAINED DUE TO FRESH WATER BEING THE DRILLING FLUID. R.M.F. ADJUSTED TO 0.1 FOR POROSITY LOG.

NOTE: Computations for this survey are based on empirical relationships. Therefore, the validity of this information is not guaranteed.





0068

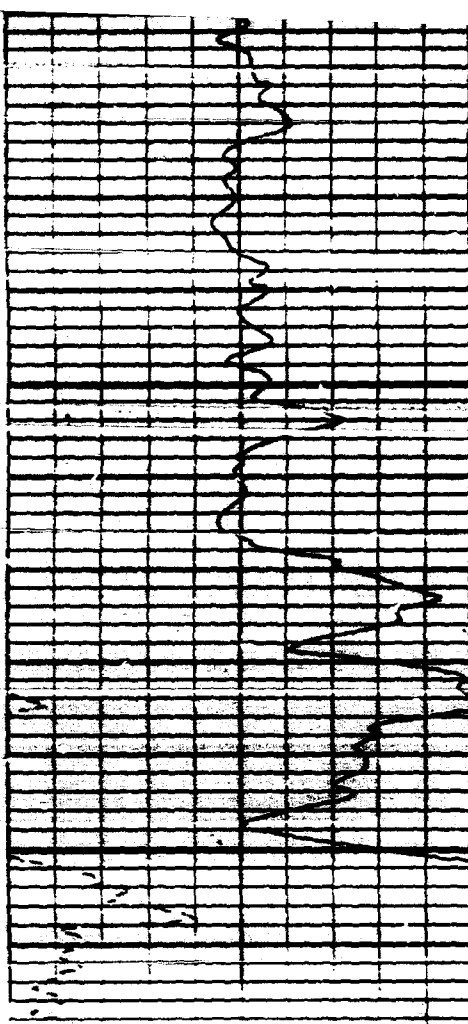
Filtrate Filtration Porosity from 0.1

Water Filtration Porosity from 0.1

$$\phi_{AL} = \frac{T - 43.5}{185 - 43.5}$$

$$\phi_{IEL} = \sqrt{\frac{.04}{R_{IEL}}}$$

$$\phi_{MLL} = \sqrt{\frac{.1}{R_{MLL}}}$$



$$\phi_{AL} = \frac{T - 43.5}{185 - 43.5}$$

$$\phi_{IEL} = \sqrt{\frac{.04}{R_{IEL}}}$$

$$\phi_{MLL} = \sqrt{\frac{.01}{R_{MLL}}}$$

0006

$F_{MLL} = \frac{R_{MLL}}{R_{ML}}$ $\phi = \sqrt{\frac{1}{F}}$ or $\phi = \sqrt{\frac{R_{ML}}{R_{MLL}}}$

COMPANY SOUTHERN UNION PRODUCTION COMPANY

WELL 2 9-10 INCHON STATE

FIELD MIDWAY ABO

COUNTY LEA STATE NEW MEXICO

$F_{IEL} = \frac{R_{IEL}}{R_{ML}}$ $\phi = \sqrt{\frac{1}{F}}$ or $\phi = \sqrt{\frac{R_{ML}}{R_{IEL}}}$

$\phi_{IEL} = \sqrt{\frac{R_{ML}}{R_{IEL}}}$

$\phi_{MLL} = \sqrt{\frac{R_{ML}}{R_{MLL}}}$

$R_{ML} = 0.04$ R_{ML} FROM IEL
 $R_{ML} = 0.1$ R_{ML} FROM MLL

PAN GEO ATLAS CORP.

Top San Andres 5064'

Top Glorieta 6678'

Top Tubb 8150'

Top Abo 8763'

10 3/4" csg @ 295 w/250 sx, circ.

Top cement behind 4 1/2" csg @ 2270'

7" @ 5550 w/350 sx

2 3/8" plastic tubing

Baker loc-set packer @ 8750'

Perfs 8901-8968

4 1/2" csg @ 9090 w/700 sx

TD 9096

Proposed Water Injection Well

Apollo Oil Company
Lovington 9 State No. 2
660' FSL & 1980' FWL
Section 9, T17S, R37E

*Installed
w/ liner
w/ gauge*

csg or liner?

lined

plastic or plastic lined?

*plastic lined
steel tubing*

Apollo Oil Company

Exhibit 7

Lovington State 9-2
Salt Water Disposal Well
Section 9
T17S, R37E, NMPM
Lea County, New Mexico

WELL DATA ON DISPOSAL WELL

Stimulation Program: none anticipated

Log: See attached

A(1) Lovington State Lease
Lovington State 9-2
Unit N 660 feet from South and 1980 feet from West
Section 9, T17S, R37E, NMPM, Lea County, New Mexico

A(2) Casing Strings:

1. 10 3/4" casing at 295 feet with 250 sacks, circulated
2. 4 1/2" casing ~~at 5350 feet~~ to 9090 feet with 700 sacks, circulated
3. top of cement 2270 feet, calculated
4. 7" casing at 5550 feet with 350 sacks.

A(3) Tubing:

2 3/8" plastic tubing set at 8750 feet

A(4) Baker Loc-set packer at 8750 feet

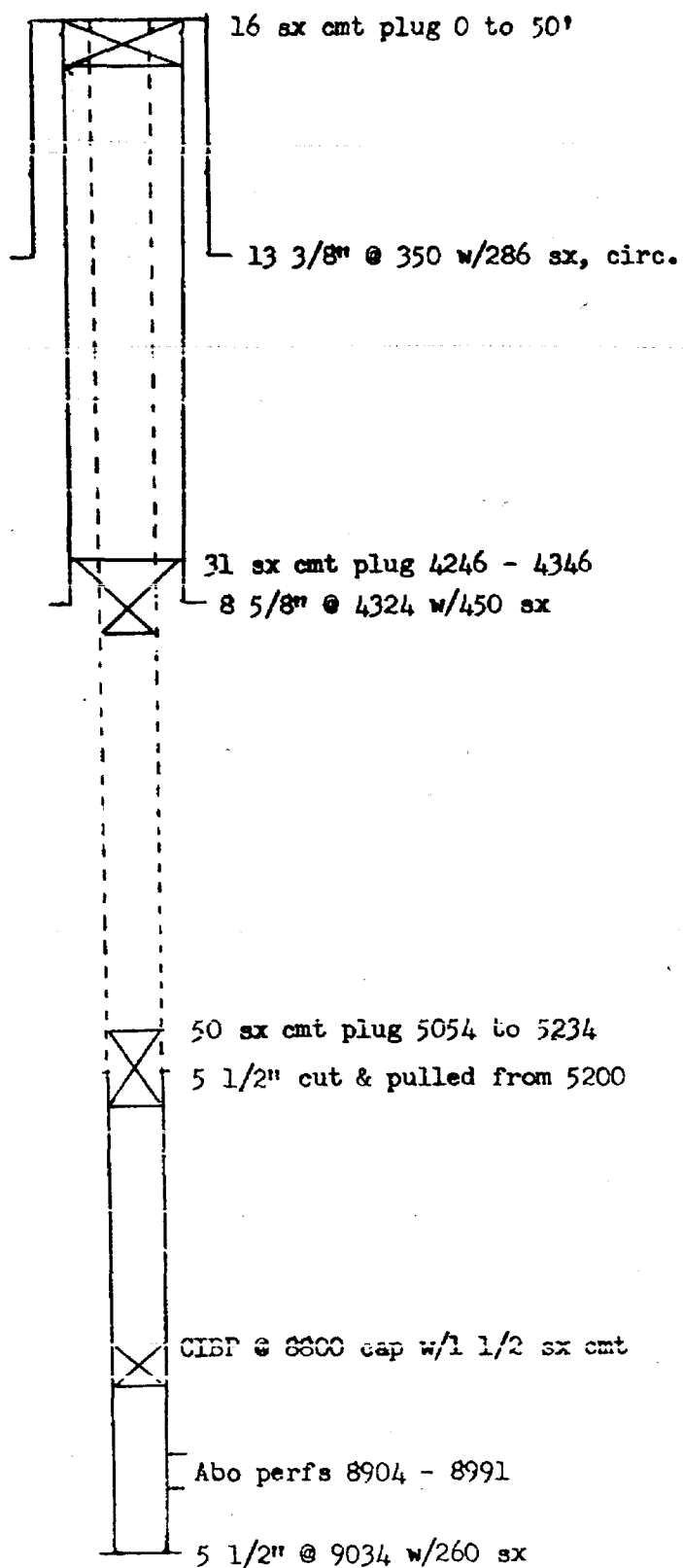
B(1) Injection formation is the Abo in the Midway-Abo Pool

B(2) Injection interval through perforations at 8901 to 8968 feet

B(3) Well drilled as a producing well in June 8, 1963

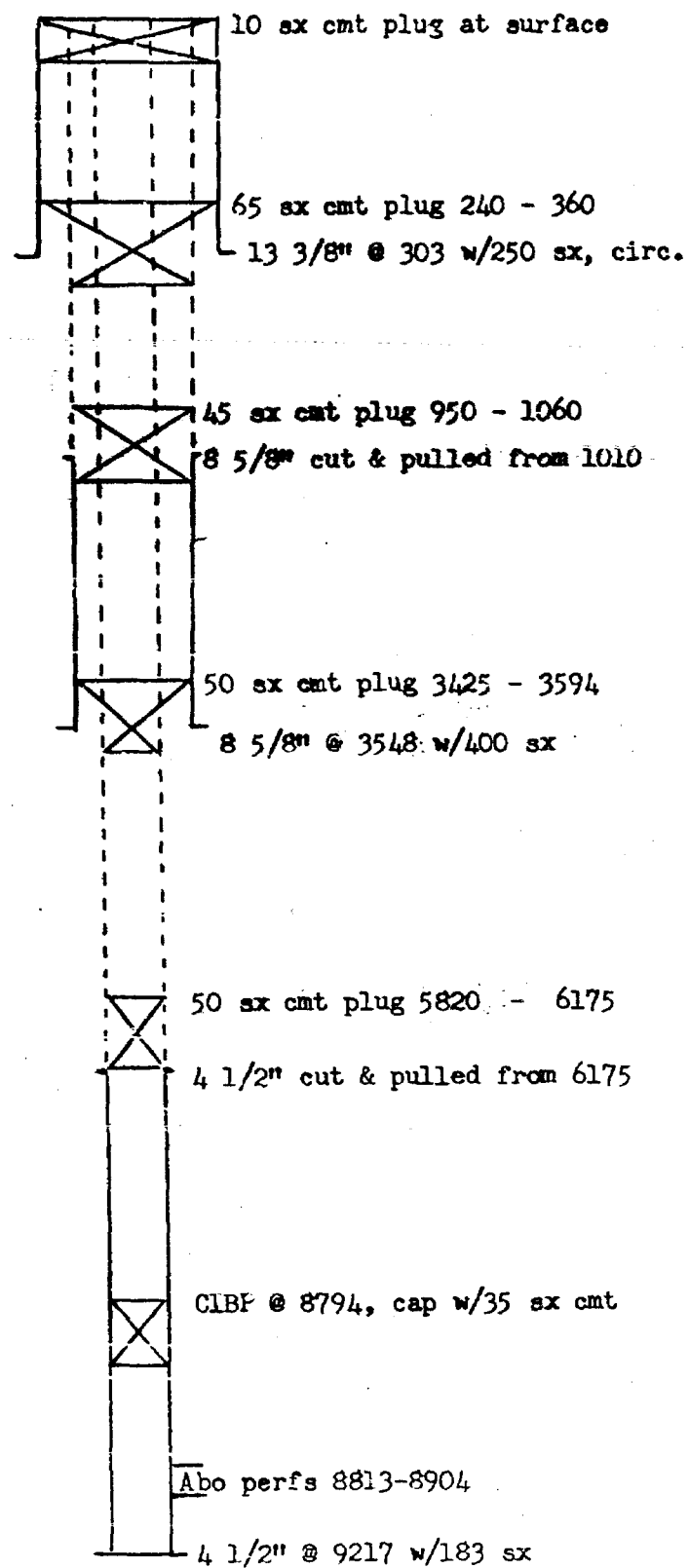
perforated: 8901-8968 feet on
August 12, 1963

Gulf Oil Corporation
Lea State EM No. 1
660' FSL & 1980' FEL
Sec. 9, T17S, R37E
P & A 7/23/71



TD 9035

Supron Energy Corporation
Lovington 9 State No. 1
500' FSL & 500' FWL
Sec. 9, T17S, R37E
P & A 12/19/76



TD 9217

Apollo Oil Company

Exhibit 5

Lovington State 9-2 well
Salt Water Disposal Well
Section 9
T17S, R37E, NMPM
Lea County, New Mexico

QUALITY OF WATER CONTROL IN SECTION NEAR SECTION 9-17S-37E

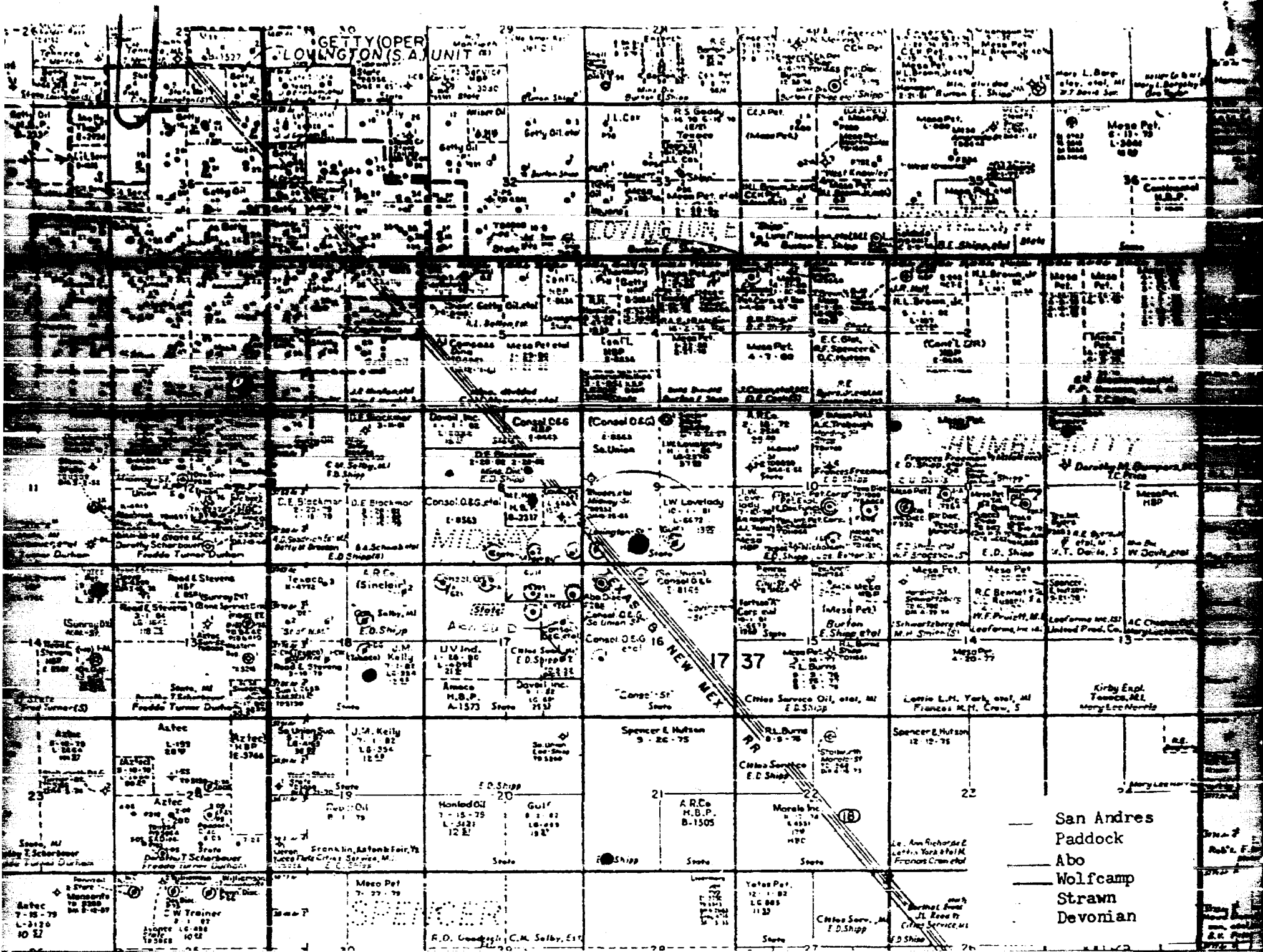
<u>LOCATION</u>	<u>DATE SPLD.</u>	<u>CHLORIDE</u>	<u>SPECIFIC ELECTRIC CONDUCTANCE</u>	<u>TOTAL DISSOLVED SOLIDS</u>
Section 10-17S-37E	10-03-79	62	818	531.70
Section 11-17S-37E	10-02-79	120	817	531.05
Section 12-17S-37E	10-11-79	36	624	405.60
Section 14-17S-37E	10-03-79	46	695	451.75
Section 18-17S-37E	10-17-79	28	587	381.55
Section 21-17S-37E	10-17-79	54	844	548.60

NOTE: See attached map for locations.

QUALITY OF WATER CONTROL IN SECTIONS NEAR SECTION 9-17S-37E

<u>LOCATION</u>	<u>DATE SPID.</u>	<u>CHLORIDE</u>	<u>SPECIFIC ELECTRIC CONDUCTANCE</u>	<u>TOTAL DISSOLVED SOLIDS</u>
Section 10-17S-37E	10-03-79	62	8.8	531.70
Section 11-17S-37E	10-02-79	120	817	531.05
Section 12-17S-37E	10-11-79	36	624	405.60
Section 14-17S-37E	10-03-79	46	695	451.75
Section 18-17S-37E	10-17-79	28	587	381.55
Section 21-17S-37E	10-17-79	54	844	548.60

NOTE: See attached map for locations.



APOLLO OIL COMPANY

Exhibit 10

Lovington State 9-2
Salt Water Disposal Well
Section 9
T17S, R37E, N36W
Lea County, New Mexico

AFFIRMATIVE STATEMENT

APOLLO OIL COMPANY has examined available geological and engineering data and finds no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

APOLLO OIL COMPANY

Exhibit 11

Lovington State 9-2
Salt Water Disposal Well
Section 9
T17S, R37E, N34W
Lea County New Mexico

NOTICE

Pursuant to Section XIV

Applicant has mailed copies of the application to
the following :

Surface owner:

Commissioner of Public Lands
P.O. Box 1148
Santa Fe, New Mexico 87501
ATTN: Mr. Ray Graham

Leasehold Operators within one-half mile:

Gulf Oil Corporation
Box 1150
Midland, Texas 79702

Supron Energy Corp.
Bldg. V, Fifth Floor
10300 North Central Expressway
Dallas, Texas 75231

Consolidated Oil & Gas Inc.
1300 Lincoln Tower Bldg.
1860 Lincoln Street
Denver, Colorado 80295

Applicant has caused to be published in the Lovington Leader,
a newspaper of general circulation in Lea County, the attached
notice.

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
SANTA FE, NEW MEXICO

NOTICE: To all persons having any right, title, interest
or claim in the following:

Pursuant to the Rules and Regulations of the New Mexico Oil Conservation Division, APOLLO OIL COMPANY, hereby gives public notice that it has applied to the Division for an order approving its Lovington State Well #9-2 located 660 feet from the South line and 1980 feet from the West line of Section 9, T17S, R37E, NMPM, Lea County, New Mexico as a disposal well in the Abo formation of the Midway-Abo Pool at a depth of 8866 feet to 8968 feet at a maximum rate of 2,500 barrels per day at a maximum injection pressure of 800 psi.

Any interested party must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501 within fifteen (15) days of the date of publication of this notice.

KELLAHIN & KELLAHIN
Attorneys at Law
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285
Attorneys for Apollo Oil Company

Apollo Oil Company

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom, date, and address of delivery \$_____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Commissioner of Public Land
P.O. Box 1148
Santa Fe, NM 87501

3. ARTICLE DESCRIPTION:
REGISTERED NO. 768346 INSURED NO. 75231

(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE: *[Signature]* CLASS: *[Initials]* CLASSIFIED: *[Initials]*

DATE OF DELIVERY: *[Signature]*

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom, date, and address of delivery \$_____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Bill Gressett
Oil Conservation Division
Drawer DD - Artesia, NM 88210

3. ARTICLE DESCRIPTION:
REGISTERED NO. 768347 INSURED NO. 75231

(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE: *[Signature]* CLASS: *[Initials]* CLASSIFIED: *[Initials]*

DATE OF DELIVERY: *[Signature]*

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom, date, and address of delivery \$_____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Supron Energy Corp.
Bldg. V. Fifth Floor
10300 N. Centra. Expwy-Dallas, TX

3. ARTICLE DESCRIPTION:
REGISTERED NO. 768344 INSURED NO. 75231

(Always obtain signature of addressee or agent)
I have received the article described above.
SIGNATURE: *[Signature]* CLASS: *[Initials]* CLASSIFIED: *[Initials]*

DATE OF DELIVERY: *[Signature]*

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery.....

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Consolidated Oil & Gas Inc.
1300 Lincoln Tower Bldg.
1860 Lincoln St. - Denver, CO

3. ARTICLE DESCRIPTION:
REGISTERED NO. CERTIFIED NO. INSURED NO. 80295
768343

(Always obtain signature of addressee or agent.)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

DATE OF DELIVERY
8/20/81

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:



★GPO : 1979-288-048

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery.....

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Gulf Oil Corporation
Box 1150
Midland, Texas 79702

3. ARTICLE DESCRIPTION:
REGISTERED NO. CERTIFIED NO. INSURED NO.
768345

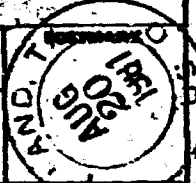
(Always obtain signature of addressee or agent.)

I have received the article described above.
SIGNATURE ☐ Addressee ☐ Authorized agent

DATE OF DELIVERY
James C. Allen

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:



★GPO : 1979-288-048

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

APOLLO OIL COMPANY
Lovington State 9-2 Well
Salt Water Disposal

INDEX

- Exhibit 1 - Map Required by Paragraph C of C-108
- Exhibit 2 - Tabular Summary Required by Paragraph VI of C-108
- Exhibit 3 - Data Sheet Required by Paragraph VII of C-108
- Exhibit 4 - Geological data - Paragraph VIII
- Exhibit 5 - log of Disposal Well
- Exhibit 6 - Data Sheet on Disposal Well
- Exhibit 7 - Schematic of SWD well
- Exhibit 8 - Schematic of P & A wells within 1 mile
- Exhibit 9 - Water Quality
- Exhibit 10 - Statement per paragraph XII - C-108
- Exhibit 11 - Notice Requirements

KELLAHIN and KELLAHIN

Attorneys at Law

500 Don Gaspar Avenue

Post Office Box 1769

Santa Fe, New Mexico 87501

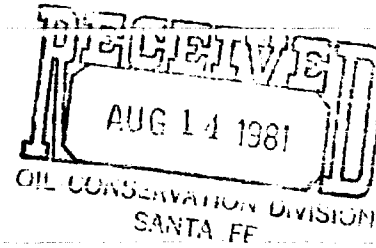
Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4235
Area Code 505

August 14, 1981

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

RE: Salt Water Disposal
Lovington State 9-2 Well
Section 9
T17S, R37E



Case 7348

Dear Joe:

Please set the enclosed original application and
one copy for the examiner hearing on September 9, 1981.

Very truly yours,

A handwritten signature in dark ink, appearing to read "W. Thomas Kellahin". The signature is written in a cursive style with a large, stylized "W" and "K".

W. Thomas Kellahin

WTK:jm
Enclosures

cc: Mr. Alan Ralston
OCD - Artesia
Certified Mail to All
Interested Parties

Case 7348

APPLICATION FOR AUTHORIZATION TO INJECT

- RECEIVED**
AUG 14 1981
- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☒ no
- II. Operator: APOLLO OIL COMPANY
Address: P. O. Box 1737, Hobbs, New Mexico, 88240 CONSERVATION DIVISION
Contact party: Alan W. Ralston Phone: 505-397-3554
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: W. Thomas Kellahin Title: Attorney for applicant
Signature: [Signature] Date: August 3, 1981
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.
Exhibit A - Order No. R-6702

BEFORE EXAMINER NUTTER	
OIL CONSERVATION DIVISION	
Ag 1/0	EXHIBIT NO. <u>1-11</u>
CASE NO.	<u>7348</u>

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates and pressures; and
- (4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

APOLLO OIL COMPANY
Lovington State 9-2 Well
Salt Water Disposal

INDEX

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- Exhibit 10 - Statement per paragraph XII - C-108
- Exhibit 11 - Notice Requirements



San Andres
Paddock
Abo
Wolfcamp
Strawn
Devonian

Tabular Summary
Wells Within One-Half Mile of
Apollo Oil Co. Livingston "9" No. 2

Consolidated Oil & Gas, Inc. Midway State #1	330' FSL & 330' FEL, Sec. 8, T17S, R37E Csg: 13" @ 304 w/300 sx. 8 5/8" @ 3973 w/350 sx. 5 1/2" liner 3836-8936 w/425 sx.	Top cmt: surface Top cmt: 3052 est Top cmt: 6484 est	Total Depth 8939, Perfs 8688-8856
Gulf Oil Corp. Les State EM #1	660' FSL & 1980' FEL, Sec. 9, T17S, R37E Csg: 13 3/8" @ 350 w/286 sx. 8 5/8" @ 4324 w/450 sx. 5 1/2" @ 9034 w/260 sx.	Top cmt: surface Top cmt: 2556 est Top cmt: 6895 TS	Total Depth 9035, Perfs 8904-8991, P&A 7/23/71 Cut & pulled from 5200
Supron Energy Corp. Livingston 9 State #1	500' FSL & 500' FEL, Sec. 9, T17S, R37E Csg: 13 3/8" @ 303 w/250 sx. 8 5/8" @ 3548 w/400 sx. 4 1/2" @ 9217 w/183 sx.	Top cmt: surface Top cmt: 1976 est Top cmt: 8415 est	Total Depth 9217, Perfs 8813-8904, P&A 12/19/76 Cut & pulled from 1010 Cut & pulled from 6175
Consolidated Oil & Gas, Inc. Southern Union State #1	500' FSL & 660' FEL, Sec. 16, T17S, R37E Csg: 13 3/8" @ 314 w/350 sx. 8 5/8" @ 3549 w/350 sx. 5 1/2" @ 9014 w/300 sx.	Top cmt: surface Top cmt: 2825 TS Top cmt: 7282 est	Total Depth 9014, Perfs 8861-8898
Apollo Oil Co. Livingston 16 State #1	440' FSL & 1980' FEL, Sec. 16, T17S, R37E Csg: 13 3/8" @ 329 w/250 sx. 8 5/8" @ 3570 w/400 sx. 4 1/2" @ 9048 w/300 sx.	Top cmt: surface Top cmt: 1958 est Top cmt: 7623 TS	Total Depth 9048, Perfs 8930-8979

Apollo Oil Company

Exhibit 3

Lovington State 9-2
Salt Water Disposal Well
Section 9
T1/S, R3/E, T4N
Lea County, New Mexico

Data on Proposed Operation

1. Proposed average and maximum daily rate and volume of fluids to be injected:

Average daily rate of 1,000 B/D
Maximum daily rate of 2,500 B/D

2. System is closed.

3. Proposed average and maximum injection pressure:

Average injection pressure: 250 psi
Maximum injection pressure: 800 psi

4. (a) Source of injection fluid: Producing leases in area

(b) Analysis of formation fluid:

5. Zone of disposal is productive of oil and gas within one mile of the proposed disposal well.

Apollo Oil Company

Exhibit 4

Lovington State 9-2
Salt Water Disposal Well
Section 9
1175, R37E, N44M
Lea County, New Mexico

Geological Data on Injection Zone

Pool: Midway-Abo

Formation: Abo

Geological Name: Abo

Thickness: at 167 feet

Depth: 8763 top of Abo

Injection Interval: 1 perforation 8866 to 8884 feet
1 perforation 8834 to 8852 feet
2 perforations 8901 to 8968 feet

PAN GEO ATLAS CORP.



Computed Porosity Log

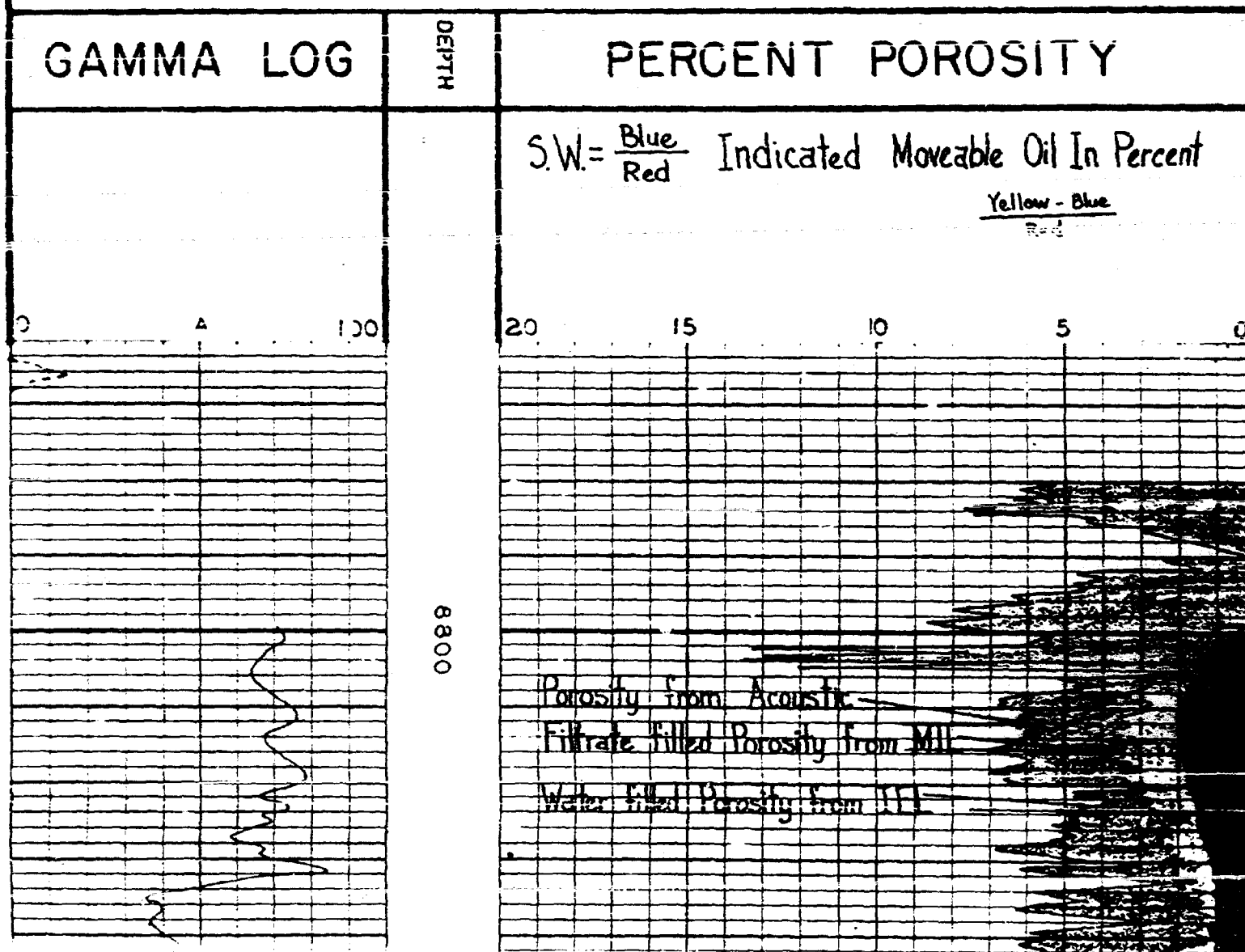
<p>FILE NO.</p> <p><i>2715</i></p>	COMPANY SOUTHERN UNION PRODUCTION COMPANY	
	WELL 2-9 LOVINGTON STATE	
	FIELD MIDWAY A90	
	COUNTY LEA	STATE NEW MEXICO
	LOCATION: 660' FSL & 1980' FWL,	
	SEC 9 TWP 17-S RGE 37-E	Other Services GR/A IEL WLL
Permanent Datum GROUND LEVEL Elev. 3774.5		Elevations:
Log Measured from K.B. 11' Ft. Above Permanent Datum		KB 3785.5
Drilling Measured from K.B.		DF 3784.5
		GI 3774.5

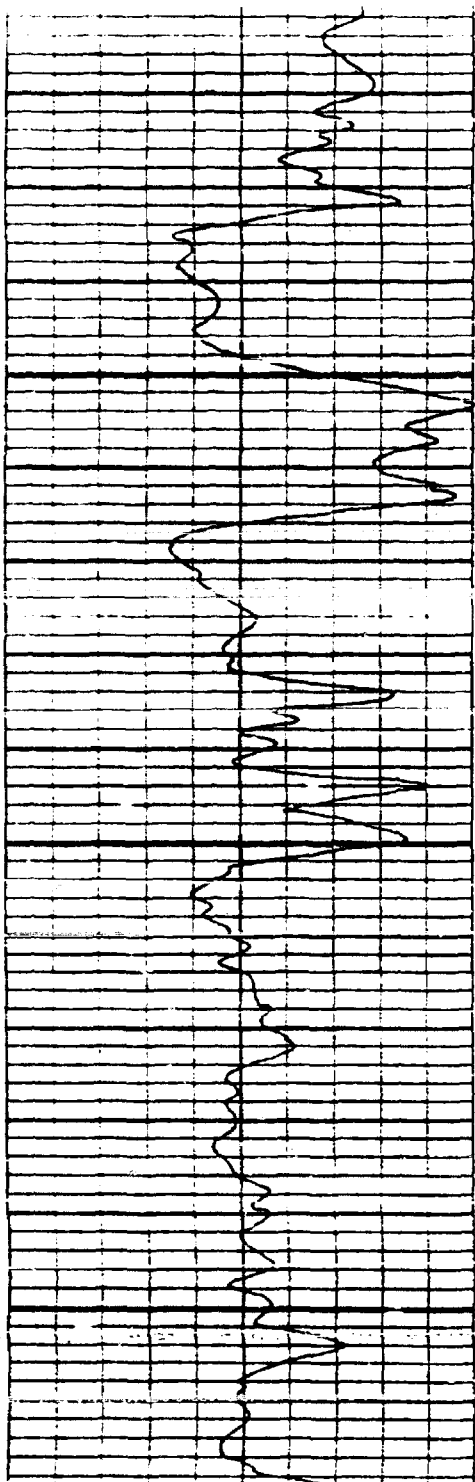
Date	7/27/63			
Run No.	ONE			
Matrix Velocity	23,000			
Bottom Logged Interval	9000			
Top Logged Interval	8800			
Rw	.04 @ 137°F			
Rmf	.1 @ 137°F			
Bit Size	6 1/4			
Type Fluid in Hole	FRESH WATER			
Density and Viscosity	8.3 29			
pH and Fluid Loss	8.0 *			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp.	8.41 @ 86	F	F	F
Rmf @ Meas. Temp.	* @ *	F	F	F
Rmc @ Meas. Temp.	* @ *	F	F	F
Source of Rmf and Rmc	MEASURED			
Rm @ BHT	5.6 @ 137	F	F	F
Time Since Circ.	8 HOURS			
Max. Rec. Temp. Deg. F.	137°F	F	F	F
Equip. No. and Location	EL-25 HOBBS			
Recorded By	CAREY			
Witnessed By	MR. ROBERTS			



* INFORMATION NOT AVAILABLE.
 * INFORMATION COULD NOT BE OBTAINED DUE TO FRESH WATER BEING THE DRILLING FLUID. R.M.F. ADJUSTED TO 0.1 FOR POROSITY LOG.

NOTE: Computations for this survey are based on empirical relationships. Therefore, the validity of this information is not guaranteed.





0068

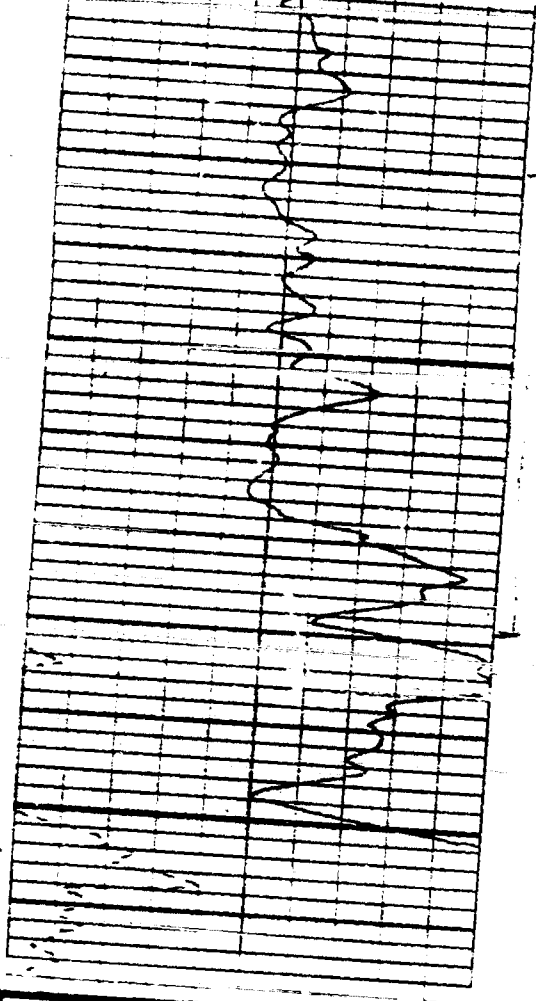
Filtrate Filled Porosity from MII

Water Filled Porosity from MII

$$\phi_{AL} = \frac{T - 43.5}{185 - 43.5}$$

$$\phi_{IEL} = \sqrt{\frac{.04}{R_{IEL}}}$$

$$\phi_{MLL} = \sqrt{\frac{.1}{R_{MLL}}}$$



0006

$$\phi_{AL} = \frac{7-43.5}{185-43.5}$$

$$\phi_{IEL} = \sqrt{\frac{.04}{R_{IEL}}}$$

$$\phi_{MLL} = \sqrt{\frac{.1}{R_{MLL}}}$$



$$F_{MLL} = \frac{R_{MLL}}{R_{XO}} \quad \phi = \sqrt{\frac{1}{F}} \quad \text{OR} \quad \phi = \sqrt{\frac{R_{MLL}}{R_{XO}}}$$

COMPANY SOUTHERN UNION PRODUCTION COMPANY

WELL 2 B LC INTON STATE

FIELD MIDWAY AEG

COUNTY UEA STATE NEW MEXICO

$$F_{IEL} = \frac{R_{IEL}}{R_{XO}} \quad \phi = \sqrt{\frac{1}{F}} \quad \text{OR} \quad \phi = \sqrt{\frac{R_{IEL}}{R_{XO}}}$$

$$\phi_{IEL} = \sqrt{\frac{R_{MLL}}{R_T}}$$

$$\phi_{MLL} = \sqrt{\frac{R_{MLL}}{R_{XO}}}$$

$R_u = 0.04$ R_T FROM IEL
 $R_{ML} = 0.1$ R_{XO} FROM MLL

PAN GEO ATLAS CORP.

*Drilling packer depth of 2000
ft. from 1 to 7000*

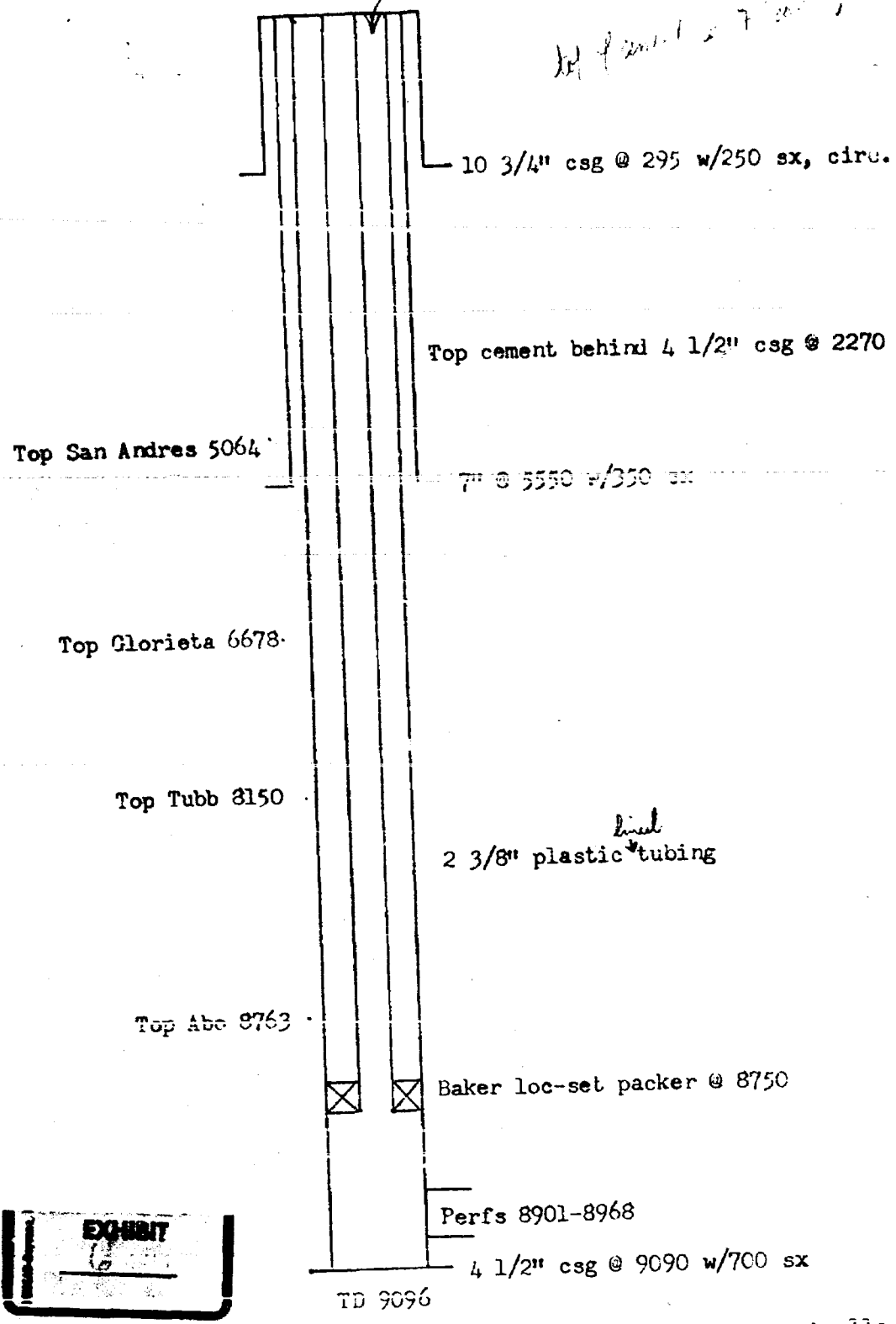


EXHIBIT
6

Proposed Water Injection Well

Apollo Oil Company
Lovington 9 State No. 2
660' FSL & 1980' FWL
Section 9, T17S, R37E

Apollo Oil Company

Exhibit 7

Lovington State 9-2
Salt Water Disposal Well
Section 9
T17S, R37E, NMPM
Lea County, New Mexico

WELL DATA ON DISPOSAL WELL

Stimulation Program: none anticipated

Log: See attached

A(1) Lovington State Lease
Lovington State 9-2
Unit N 660 feet from South and 1980 feet from West
Section 9, T17S, R37E, NMPM, Lea County, New Mexico

A(2) Casing Strings:

1. 10 3/4" casing at 295 feet with 250 sacks, circulated
2. 4 1/2" casing at ~~5350 feet~~ to 9090 feet with 700 sacks, circulated
3. top of cement 2270 feet, calculated
4. 7" casing at 5550 feet with 350 sacks.

A(3) Tubing:

2 3/8" plastic tubing set at 8750 feet

A(4) Baker Loc-set packer at 8750 feet

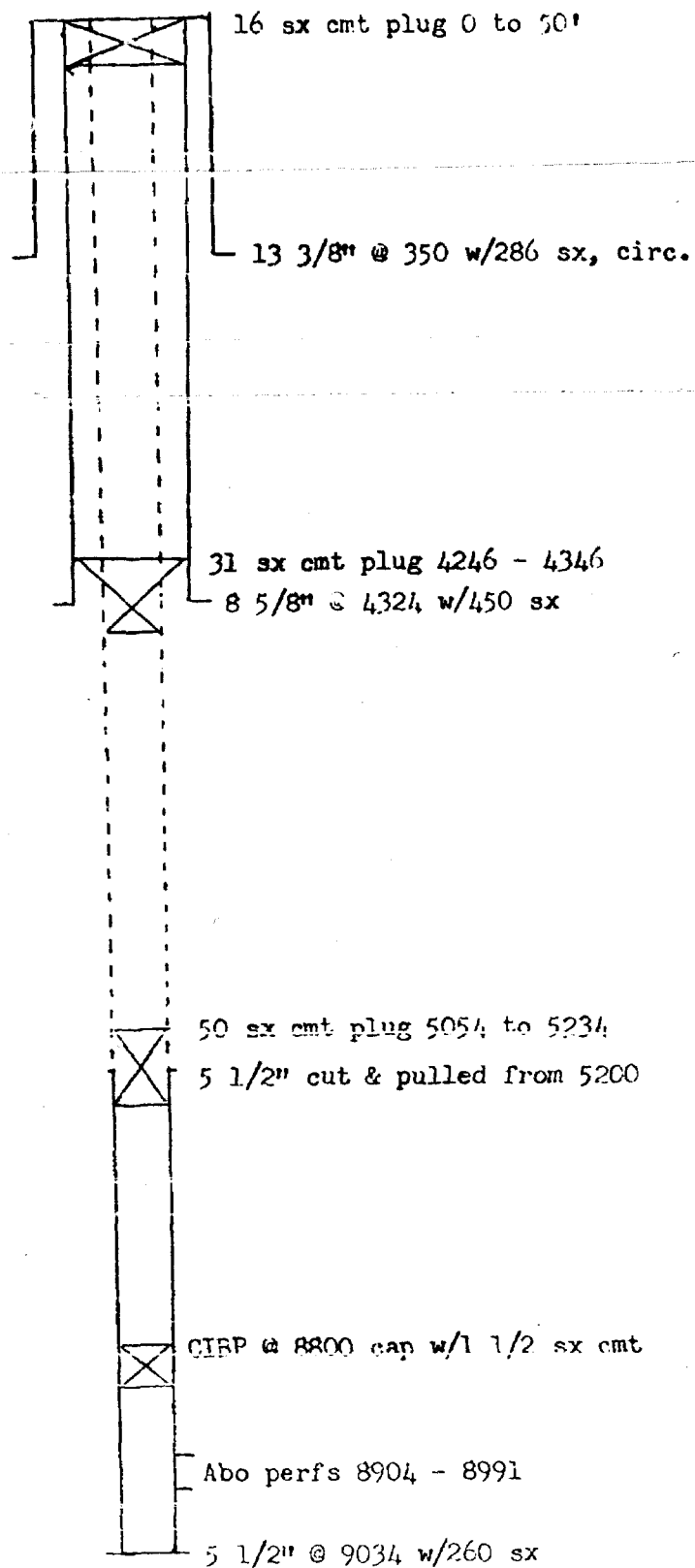
B(1) Injection formation is the Abo in the Midway-Abo Pool

B(2) Injection interval through perforations at 8901 to 8968 feet

B(3) Well drilled as a producing well in June 8, 1963

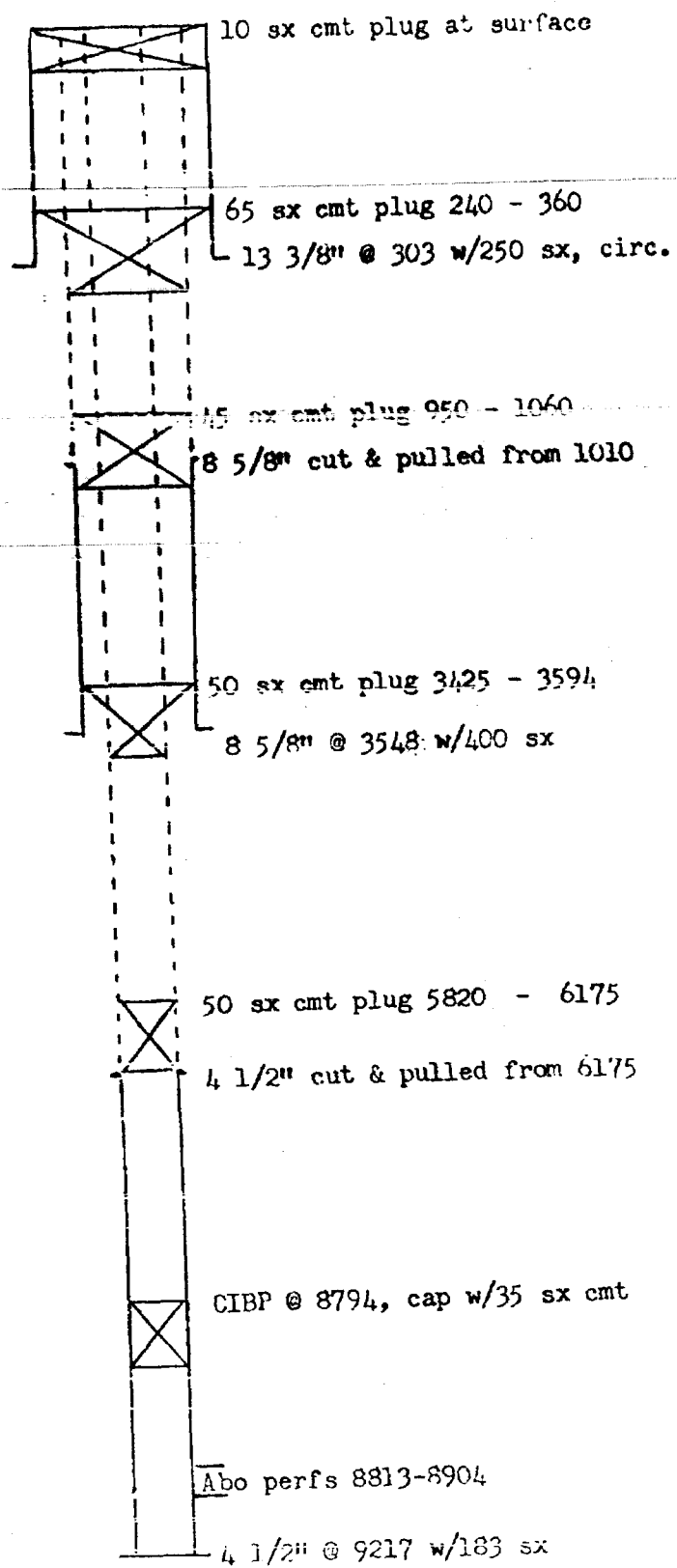
perforated: 8901-8968 feet on
August 12, 1963

Gulf Oil Corporation
Lea State EM No. 1
660' FSL & 1980' FEL
Sec. 9, T17S, R37E
P & A 7/23/71



TD 9035

Supron Energy Corporation
Lovington 9 State No. 1
500' FSL & 500' FWL
Sec. 9, T17S, R37E
P & A 12/19/76



TD 9217

Apollo Oil Company

Exhibit 9

Lovington State 9-2 well
Salt Water Disposal Well
Section 9
T17S, R37E, NMFM
Lea County, New Mexico

QUALITY OF WATER CONTROL IN SECTION NEAR SECTION 9-17S-37E

<u>LOCATION</u>	<u>DATE SPLD.</u>	<u>CHLORIDE</u>	<u>SPECIFIC ELECTRIC CONDUCTANCE</u>	<u>TOTAL DISSOLVED SOLIDS</u>
Section 10-17S-37E	10-03-79	62	818	531.70
Section 11-17S-37E	10-02-79	120	817	531.05
Section 12-17S-37E	10-11-79	36	624	405.60
Section 14-17S-37E	10-03-79	46	695	451.75
Section 18-17S-37E	10-17-79	28	587	381.55
Section 21-17S-37E	10-17-79	54	844	548.60

NOTE: See attached map for locations.

APOLLO OIL COMPANY

Exhibit 10

Lovington State 9-2
Salt Water Disposal Well
Section 9
T17S, R37E, NMPM
Lea County, New Mexico

AFFIRMATIVE STATEMENT

APOLLO OIL COMPANY has examined available geological and engineering data and finds no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

APOLLO OIL COMPANY

Exhibit 11

Lovington State 9-2
Salt Water Disposal Well
Section 9
T17S, R37E, NMPM
Lea County New Mexico

NOTICE

Pursuant to Section XIV

Applicant has mailed copies of the application to
the following :

Surface owner:

Commissioner of Public Lands
P.O. Box 1148
Santa Fe, New Mexico 87501
ATTN: Mr. R. Graham

Leasehold Operators within one-half mile:

Gulf Oil Corporation
Box 1150
Midland, Texas 79702

Supron Energy Corp.
Bldg. V, Fifth Floor
10300 North Central Expressway
Dallas, Texas 75231

Consolidated Oil & Gas Inc.
1300 Lincoln Tower Bldg.
1860 Lincoln Street
Denver, Colorado 80295

Applicant has caused to be published in the Lovington Leader,
a newspaper of general circulation in Lea County, the attached
notice.

NOTICE OF PUBLICATION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
SANTA FE, NEW MEXICO

NOTICE: To all persons having any right, title, interest
or claim in the following:

Pursuant to the Rules and Regulations of the New Mexico Oil Conservation Division, APOLLO OIL COMPANY, hereby gives public notice that it has applied to the Division for an order approving its Lovington State Well #9-2 located 660 feet from the South line and 1980 feet from the West line of Section 9, T17S, R37E, NMPM, Lea County, New Mexico as a disposal well in the Abo formation of the Midway-Abo Pool at a depth of 8866 feet to 8968 feet at a maximum rate of 2,500 barrels per day at a maximum injection pressure of 800 psi.

Any interested party must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501 within fifteen (15) days of the date of publication of this notice.

KELLAHIN & KELLAHIN
Attorneys at Law
P.O. Box 1769
Santa Fe, New Mexico 87501
(505) 982-4285
Attorneys for Apollo Oil Company

Apollo Oil Company

SENDER: Complete Items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following articles are requested (check one):
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom, date, and address of delivery.....

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Commissioner of Public Lands
P.O. Box 1148
Santa Fe, NM 87501

3. ARTICLE DESCRIPTION:
REGISTERED NO. 768346 INSURED NO. 75731

(Always obtain signature of address or agent)

I have received the article described above.
SIGNATURE *[Signature]* DATE OF DELIVERY 8/19/81

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:

6. RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete Items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following articles are requested (check one):
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom, date, and address of delivery.....

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Bill Gressett
Oil Conservation Division
Drawer DD - Artesia, NM 88210

3. ARTICLE DESCRIPTION:
REGISTERED NO. 768347 INSURED NO. 75731

(Always obtain signature of address or agent)

I have received the article described above.
SIGNATURE *[Signature]* DATE OF DELIVERY 8/19/81

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:

6. RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete Items 1, 2, and 3.
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 - ☐ Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY
 - ☐ Show to whom, date, and address of delivery.....

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Supron Energy Corp.
Bldg. V. Fifth Floor
10300 N. Centra. Expwy-Dallas, TX

3. ARTICLE DESCRIPTION:
REGISTERED NO. 768344 INSURED NO. 75731

(Always obtain signature of address or agent)

I have received the article described above.
SIGNATURE *[Signature]* DATE OF DELIVERY 8/20/81

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:

6. RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery.....

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Consolidated Oil & Gas Inc.
1300 Lincoln Tower Bldg.
1860 Lincoln St. - Denver, CO

3. ARTICLE DESCRIPTION:
REGISTERED NO. CERTIFIED NO. INSURED NO.
768343 80295

(Always obtain signature of addressee or agent.)

I have received the article described above.
SIGNATURE: [Address] [Authorized agent]

DATE OF DELIVERY
8/20/81

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:



CLERK'S INITIALS

☆GPO : 1979-388-948

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

Apollo Oil Company

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- ☒ Show to whom and date delivered.....
 - ☐ Show to whom, date and address of delivery.....
 - ☐ RESTRICTED DELIVERY
Show to whom and date delivered.....
 - ☐ RESTRICTED DELIVERY.
Show to whom, date, and address of delivery.....

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Gulf Oil Corporation
Box 1150
Midland, Texas 79702

3. ARTICLE DESCRIPTION:
REGISTERED NO. CERTIFIED NO. INSURED NO.
768345

(Always obtain signature of addressee or agent.)

I have received the article described above.
SIGNATURE: [Address] [Authorized agent]

DATE OF DELIVERY
James [Signature]

4. ADDRESS (Complete only if requested)

5. UNABLE TO DELIVER BECAUSE:



CLERK'S INITIALS

☆GPO : 1979-388-948

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

- CASE 7348: Application of Apollo Oil 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 8834 feet to 8968 feet in its Lovington State 9 Well No. 2 in Unit N of Section 9, Township 17 South, Range 37 East, Midway-Abo Pool.
- CASE 7349: Application of Apollo Oil 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 Bough C Formation in the interval from 9645 feet to 9654 feet in its Jack Markham Well No. 2 in Unit P of Section 11, Township 9 South, Range 35 East, Bough-Permo Pennsylvanian Pool.
- CASE 7350: Application of Conoco, Inc. for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Cisco formation in the interval from 8144 feet to 8160 feet in its Lavers Federal Well No. 2 in Unit R of Section 2, Township 20 South, Range 25 East, Springs-Upper Penn Gas Pool.
- CASE 7351: Application of Mid-America Petroleum, Inc. for compulsory pooling and the rescission of Order No. R-6722, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formations underlying the W/2 of Section 12, Township 13 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. Applicant further seeks rescission of Order No. R-6722 which approved an unorthodox location for the subject well based on dedication of the S/2 of said Section 12.
- CASE 7352: Application of Yates Petroleum Corporation for designation of a tight formation, Eddy County, New Mexico. Applicant, in the above-styled cause, pursuant to Section 107 of the Natural Gas Policy Act 18 - CFR Section 271.701-705, seeks the designation as a tight formation of the Permo-Penn and formation underlying all of the following townships:

Township 17 South, Ranges 24 thru
26 East;

18 South, 24 and 25 East;

19 South, 23 thru 25 East;

20 South, 21 thru 24 East;

20 1/2 South, 21 and 22 East;

21 South, 21 and 22 East;

Also Sections 1 thru 12 in
22 South, 21 and 22 East,

All of the above containing a total of 315,000 acres more or less.

Docket No. 28-91

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 16, 1981
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 October, 1981, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.
- (2) Consideration of the allowable production of gas for October, 1981, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

Dockets Nos. 29-81 and 30-81 are tentatively set for September 23 and October 7, 1981. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 9, 1981

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

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

- CASE 7341: Application of Superior Oil Company for downhole commingling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of South Carlisbad Strawn and Morrow production in the wellbore of its Collatt State Com Well No. 1 located in Unit J of Section 1, Township 23 South, Range 26 East.
- CASE 7342: Application of Arco Oil and Gas Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Blinabry and Drinkard production in the wellbore of its State 367 Well No. 2 located in Unit 1 of Section 36 and the Ray Barton Well No. 2 located in Unit 2 of Section 36, both in Township 21 South, Range 37 East.
- CASE 7343: Application of Caribou Four Corners, Inc. for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Cha Cha Gallup - Oil Pool underlying the E/2 NW/4 of Section 18, Township 29 North, Range 14 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 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 7344: Application of Read & Stevens, Inc. for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the W/2 of Section 19, Township 23 South, Range 28 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 7345: Application of Bass Enterprises Production Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Lovington Penn Pool underlying the W/2 NE/4 of Section 13, Township 16 South, Range 36 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 7346: Application of Cibola Energy Corporation for compulsory pooling, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp through Devonian formations underlying the W/2 of Section 19, Township 10 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 7347: Application of Tenneco Oil Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a well to be drilled 660 feet from the South Line and 860 feet from the West Line of Section 20, Township 16 South, Range 34 East, Kemnitz-Morrow Gas Pool, the W/2 of said Section 20 to be dedicated to the well.

ROUGH

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. 7348

Order No. R- 6786

APPLICATION OF APOLLO OIL 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 September 9
19⁸¹, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter

NOW, on this _____ day of September, 19⁸¹, 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, Apollo Oil Company,
is the owner and operator of the Lovington State 9 Well No. 2,
located in Unit N of Section 9, Township 17 South,
Range 37 East, NMPM, Midway-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 perforated
interval from approximately 8834 feet to 8968 feet.

(4) That the injection should be accomplished through 2 1/2
-inch plastic lined tubing installed in a packer set at approxi-
mately 8750 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 the injection well or system should be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1765 psi.

~~(6) 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.~~

(6) 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.

(7) 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.

(8) 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, Apollo Oil Company, is hereby authorized to utilize its Livingston State 9 Well No. 2, located in Unit N of Section 9, Township 17 South, Range 37 East, NMPM, Midway-Abo Pool, Lea County, New Mexico, to dispose of produced salt water into the Abo formation, injection to be accomplished through 2 1/2-inch tubing installed in a packer set at approximately 8750 feet, with injection into the perforated interval from approximately 8834 feet to 8968 feet;

(8) That disposal should be limited to waters produced from the Abo formation unless additional evidence has been submitted as to compatibility of water from other formations, and the Division Director has approved the disposal of such other waters in the subject well.

8834
2
1766.8

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.

(2) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 1765 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.~~

(3) 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.

(4) 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.

(5) 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.

(6) That disposal into the subject well shall be limited to water produced from the ~~same~~ Abo formation, unless the Division Director has approved the disposal of waters produced from other formations upon receipt of evidence establishing the compatibility of such waters with the native waters of the Abo formation.