

CASE 6795: TORREON OIL COMPANY FOR A  
WATERFLOOD PROJECT, SANDOVAL COUNTY,  
NEW MEXICO

READVERTISE AND

CONTINUE TO

JANUARY 30

February 13, 1980

under adv. on the 13th

CASE NO.

6795

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APPLICATION,  
TRANSCRIPTS,  
SMALL EXHIBITS,  
ETC.



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

BRUCE KING  
GOVERNOR  
LARRY KEHOE  
SECRETARY

March 30, 1981

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87501  
(505) 827-2404

Torreon Oil Company  
P. O. Box 356  
Flora Vista, New Mexico 87415

Attention: Mr. Wm. R. Reed

Re: Case 6795, WFX 484,  
Injection Pressure Increase

Dear Mr. Reed:

Based upon information and test data submitted by your letter of November 21, 1980, the maximum authorized wellhead pressure for the following described wells is hereby increased to 380 psi:

San Luis Federal Well No. 2, Unit K, 21-T18N-R3W  
San Luis Federal Well No. 4, Unit J, 21-T18N-R3W

Yours very truly,

JOE D. RAMEY  
Director

JDR/RLS/fd

cc: Frank Chavez

Noel Reynolds  
Res. (505) 334 3760

Richard T. Kuenstler  
Res. (505) 334 3263

MAILING ADDRESS  
P. O. Box 356  
Flora Vista, N.M. 87415  
OFFICE (505) 325-6041

## NOEL REYNOLDS

Oil and Gas Properties  
107 NORTHWEST ENERGY BLDG.  
FARMINGTON, NEW MEXICO 87401

November 21, 1980

New Mexico Oil & Gas Commission,  
Mr. Joe D. Ramey, Director,  
Oil Conservation Division,  
P. O. Box 2088,  
Santa Fe, N. M. 87501.

Dear Sir:

Your administrative approval is requested for a variance in Commission Order No. WFX-484 which limits the surface injection pressure at the San Luis Field to 0.2 of the well depth (1000') or 200 psi. We have conducted injectivity tests at various pressures on the existing injection wells which indicate a fracture pressure of approximately 400 psi. Attached are tabular data and graphs showing these tests. You will notice that the wells take little or no water at 200 psi. It is suggested that the threshold pressure is approximately 200 psi (surface) or 640 psi (bottom hole) and will require 350 to 400 psi to inject the desired volume of water.

Your early consideration of this request is appreciated. Thank you.

Sincerely,

WRR/bm

Torreon Oil Company

By:  William R. Reed

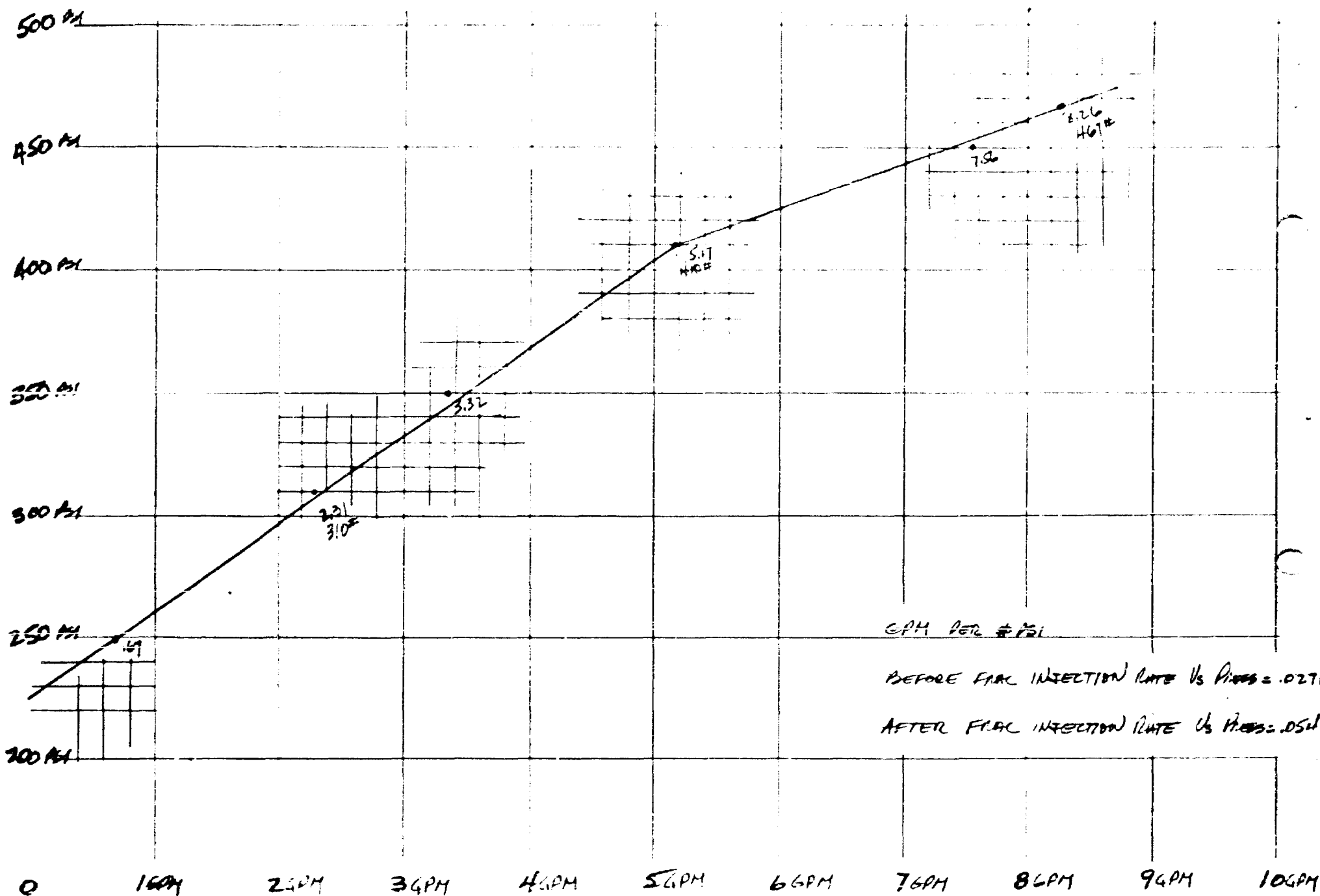
SAN LUIS FEDERAL  
INJECTIVITY TESTS  
November 18, 1980

SAN LUIS FEDERAL No. 2

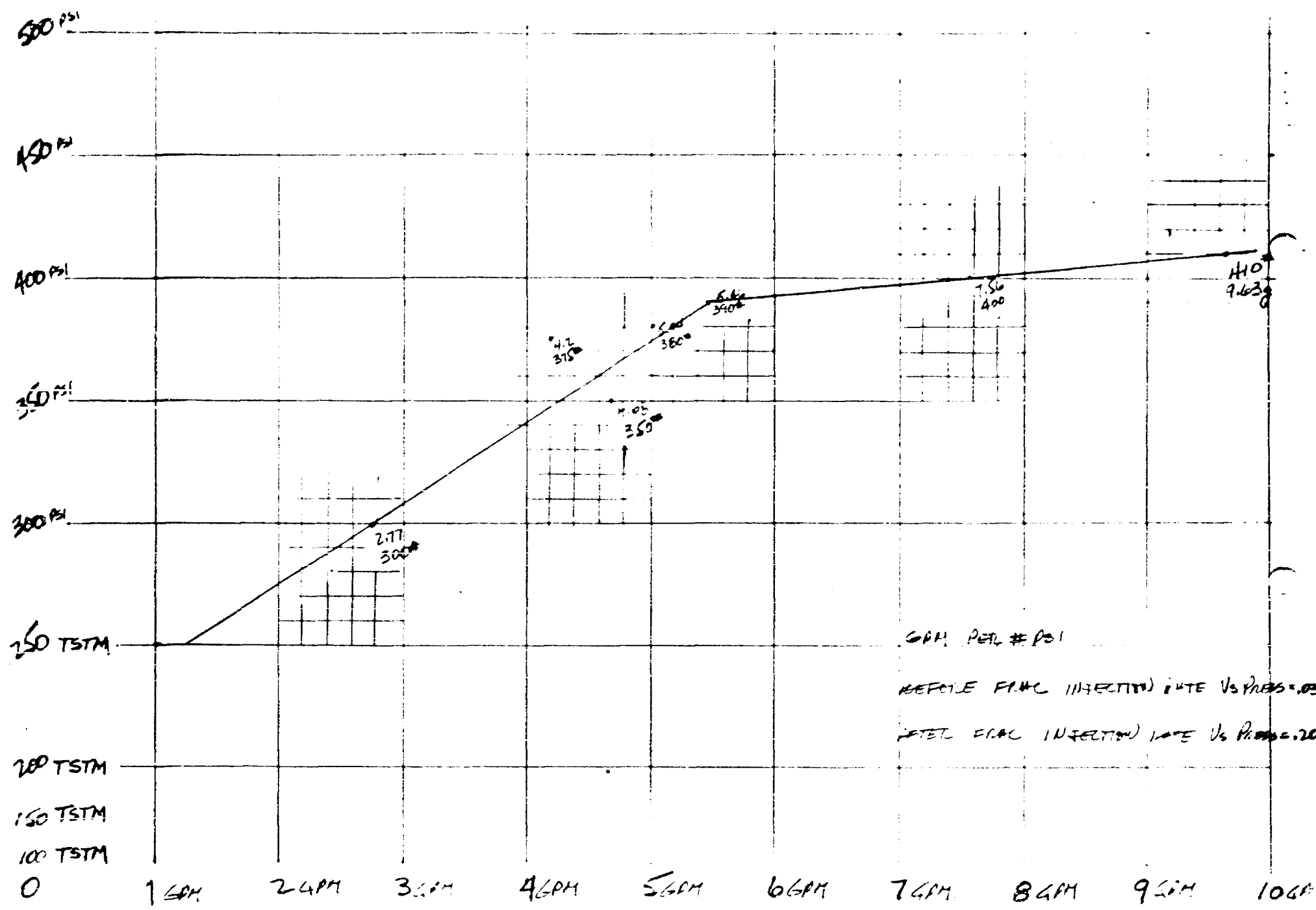
<u>PRESSURE</u>	<u>INJECTION RATE</u>
100 psi	TSTM
150 psi	TSTM
200 psi	TSTM
250 psi	TSTM
300 psi	2.77 GPM
350 psi	4.68 GPM
375 psi	4.2 GPM
380 psi	5.04 GPM
390 psi	5.46 GPM
400 psi	7.56 GPM
410 psi	9.63 GPM

SAN LUIS FEDERAL NO. 4A

50 psi	TSTM
100 psi	TSTM
150 psi	TSTM
200 psi	TSTM
250 psi	.67 GPM
310 psi	2.31 GPM
350 psi	3.32 GPM
410 psi	5.17 GPM
450 psi	7.56 GPM
467 psi	8.26 GPM



11/18/80  
 SAN LUIS FEDERAL  
 INJECTION # 7



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

EXAMINER HEARING

IN THE MATTER OF:

Application of Torreon Oil Company )  
for a waterflood project, sandoval ) CASE  
County, New Mexico. ) 6795

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

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

For the Applicant:

William F. Carr, Esq.  
CAMPBELL & BLACK P. A.  
Jefferson Place  
Santa Fe, New Mexico 87501

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



## I N D E X

C. L. HILL

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SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

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

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MR. NUNN: We'll call next Case Number  
C798.

MR. FIDILLA: Application of Torreon  
Oil Company for a waterflood project, Sandoval County, New  
Mexico.

MR. CARR: May it please the Examiner,  
my name is William F. Carr, Campbell and Black, P. A.,  
appearing on behalf of the applicant.

I have one witness who needs to be  
sworn.

(Witness sworn.)

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place  
of residence?

A C. L. Hill, Cortez, Colorado.

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

A Torreon Oil as consultant, consulting

**SALLY W. BOYD, C.S.R.**  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87505  
Phone (505) 455-7409

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engineer.

Q Have you previously testified before this Commission and had your credentials accepted and made a matter of record?

A No, I have not.

Q Will you review briefly for the Examiner your educational background and your work experience?

A Yes, I have a Bachelor's and Master's degrees in petroleum engineering from the University of Oklahoma and Louisiana State University. I am a Registered Professional Engineer in Colorado. I have approximately twenty years experience with Core Laboratories, Incorporated, and Superior Oil Company, in a reservoir engineering capacity.

MR. NUTTER: What's your first name again, Mr. Hill?

A Charles, C. L.

MR. NUTTER: Thank you.

Q Are you familiar with the application of Torreon Oil Company in this case?

A Yes.

Q Are you familiar with the area which is the general subject matter of this case?

A Yes.

MR. CARR: Are the witness' qualifications

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 435-7409

1 acceptable?

2 MR. NUTTALL: Yes, they are.

3 Q Mr. Hill, have you prepared for intro-  
4 duction in this case certain exhibits?

5 A Yes, I have.

6 Q Will you please refer to what has been  
7 marked for identification as Applicant's Exhibit Number One  
8 and explain to the Examiner what it is and what it shows?

9 A Exhibit Number One is a lease plat  
10 showing the area in question, the area outlined in red in  
11 Section 21 in the center of the map is the lease that Tor-  
12 reon proposes to flood.

13 This map shows various wells that are  
14 there or have been there at one time or another.

15 Q And would you point out for the Examiner  
16 the location of the two injection wells in question?

17 A The No. 1, it's marked by the No. 1  
18 Torreon, would be in the northeast of the southwest quarter  
19 section, and No. 2 is in the same quarter quarter in the  
20 north, Unit K.

21 Q Does this plat also show all wells  
22 within two miles of the subject well?

23 A To the best of my knowledge, it does.

24 Q And what formations are these wells  
25 completed in?

SALLY W. BOYD, C.S.R.  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 435-7409

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A. the Menefee formation, primarily.

Q And you've indicated by your well symbols whether or not they're currently producing?

A. Yes.

Q Does this also show the leases in the area?

A It shows Torreon's lease. The others are identified, I think, correctly, but I didn't have the information to definitely say that.

Q All right. Will you please explain to the Examiner, or identify Applicant's Exhibits Two, Three, Four, and Five?

A The ones I have aren't marked, but ---

Q Those are the logs.

A The logs of the proposed injection wells 1 and 2. They are density and electrical logs, which indicate porosity and formation resistivity and imply water saturation data.

Q Now will you refer to your diagrammatic sketches of each of the wells which are marked for identification as Exhibits Six and Seven, and review the data contained thereon for Mr. Nutter?

A Okay, these are simply a diagram of the proposed injection wells. We have 4-1/2 casing set through the Menefee or 1000-foot sand, which is the lowest

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

1 of the Menefee sand. I intend to take a look at. The  
2 sands have been perforated in the interval which we intend  
3 to inject.

4 There will be, when the -- if approved,  
5 tubing and packer run to approximately 20 feet above the  
6 producing formation and a packer set to remove any problems  
7 with pressure that we might have, and casing corrosion, and  
8 that sort of thing.

9 There also is, you can see, surface  
10 pipe set to approximately 30 feet in both casings, of 7-  
11 inch.

12 In both cases the cement was circulated  
13 to the surface in both strings of casing. The cement was  
14 circulated to the surface.

15 Q Will you now refer to what has been  
16 marked Exhibit Number Eight and at this time also discuss  
17 Exhibit Number Nine and review the data contained thereon  
18 for Mr. Nutter?

19 A They are a couple of water analyses,  
20 one from the Menefee formation, which indicates a total  
21 dissolved solids of nearly 2700 parts per million, and a  
22 similar analysis on the proposed salt water well, which is  
23 an Entrada well, that has a total dissolved solids content  
24 of nearly 15,000 parts per million.

25 As near as we can tell, there are no

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B

Santa Fe, New Mexico 87501

Phone (505) 455-7409

1 potable fresh water down in the area. We have data based  
2 on air drilling that would indicate that there is just very  
3 little there at all, and that is there is similar salinity,  
4 I think, to that reported in Exhibit 18, I think it is,  
5 yes, approximately 2700 parts per million, which certainly  
6 wouldn't be potable water.

7 So I feel that really there is very  
8 little surface potable water to protect, if any.

9 Q Mr. Hill, are the -- have the wells in  
10 this area reached an advanced state of depletion and there-  
11 fore can be classified as stripper?

12 A Very definitely.

13 Q And how much data is currently available  
14 on the wells in this area?

15 A Very limited. There's indication in  
16 most cases that wells that appear to be abandoned on the  
17 map are in fact abandoned, but we have almost no plugging  
18 data on them.

19 Q You have reviewed scout tickets?

20 A Yes

21 Q And Commission records?

22 A Correct.

23 Q Is Torreon prepared to report to the  
24 Commission all the information required by Commission rules  
25 and regulations if this application is approved?

SALLY W. ELOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

1  
2  
3 Q Now what forms are required forms  
4 with the Oil Conservation Division?

5 A Yes.

6 Q Now what formation is it you're going  
7 to be injecting into?

8 A The Menefee.

9 Q And what is the source of the water  
10 which you are proposing to inject?

11 A Entrada, which is referred to on Exhibits  
12 Eight and Nine, the water analyses.

13 Q What volumes are you anticipating you  
14 will inject?

15 A Approximately 500 barrels a day is the  
16 hoped for injection; however, we have not tested them yet,  
17 so we really can't say.

18 Q And you will be injecting at what depth?

19 A Approximately 1000 feet.

20 Q Now do you plan to inject under pres-  
21 sure?

22 A Yes, we'll have surface pressure. We  
23 intend to run injectivity tests to determine fracture  
24 gradient. If past experience is any indication, we can pro-  
25 bably go to somewhere in the neighborhood of 300 to 400  
pounds surface pressure, but we will run the injectivity



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

1 wants to determine, it is definitely want to stay below frac-  
2 ture pressure.

3 Q Now you also requesting in this  
4 application an administrative procedure for expanding the  
5 water flood project?

6 A Yes, we are.

7 Q In your opinion will granting this ap-  
8 plication be in the interest of conservation and the pro-  
9 tection of correlative rights and the prevention of waste?

10 A Yes.

11 Q Have Exhibits One through Nine either  
12 prepared by you or have you reviewed them and can you testify  
13 as to their accuracy?

14 A Yes, they were.

15 MR. CARR: At this time, Mr. Examiner,  
16 we would offer Applicant's Exhibits One through Nine.

17 MR. NUTTER: Applicant's Exhibits One  
18 through Nine will be admitted in evidence.

19 MR. CARR: I think, perhaps, Mr. Nutter,  
20 at this time we also would point out that there were prob-  
21 lens getting the ad in this case in the Sandoval paper, and  
22 we're aware that there will have to be a delay in getting  
23 the order out because of that.

24 MR. NUTTER: Yes, the Sandoval County  
25 paper failed to receive the ad in time to run it, they said,

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 435-7409

1 so it has been advertised for the January 30 Hearing, I  
2 presume, it was sent to them, anyway, so we'll have to with-  
3 hold any order on this case until after such time as we have  
4 called it again for a hearing on January 30th.

5 MR. CARR: At this time I pass Mr. Hill.

6  
7 CROSS EXAMINATION

8 BY MR. NUTTER:

9 Q Mr. Hill, now you've mentioned that you  
10 would be injecting Entrada water into the Menefee formation.  
11 I notice a marked difference in the water analyses for these  
12 two formations. Have any tests been run to determine the  
13 compatibility of Entrada water with the native water in the  
14 Menefee?

15 A No, sir, they have not. Such tests are  
16 planned and certainly if there is a compatibility problem  
17 we will seek elsewhere for our water.

18 Q Or you'll just have to treat the water --

19 A Yes.

20 Q -- to make it compatible.

21 A Yes, we will make it compatible, one  
22 way or -- get compatible water, certainly.

23 Q Uh-huh. Now --

24 A I do think -- may I interject a point?

25 I do think that the high salinity of Entrada water may be

Q Or for the two of them?

Q Now, as Mr. Carr pointed out, it may become necessary at a later time to request an expansion administration of that required amount of water into --

A To add another well to this injection --

Q Yes, sir, right.

Q -- program.

A 500, there's nothing magical about the 500, except time, to flood it out in a reasonable time.

Q Now you said that you would stay below the formation fracture pressure to get this 500 barrels of water into the ground, and you didn't expect to have to exceed 300 to 400 psi.

A Now the rule of thumb that this Division follows in determining maximum injection pressures for these projects in the absence of step rate tests or formation fracture tests, is .2 of a pound per foot.

A Now at an injection depth here of about 1000 feet, we would come up with about 200 pounds. Can you start off with 200 pounds --

A Certainly, that's what we intend to do and from indications, from what Mr. Reynolds tells me, some of his drilling problems, it will probably accept water at less than that. We are designing the surface facilities to go to that pressure, if necessary; however, before we

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B

Santa Fe, New Mexico 87501

Phone (505) 455-7409

1 would -- of course, in flooding I would be very reluc-  
2 tent to even consider going to fracture pressure, because  
3 you're cutting your own throat. You tend to channel pretty  
4 early if you do.

5 So we will stay below fracture pressure.  
6 We'll run injectivity tests to determine it.

7 Q Now, how about shallower waters than  
8 this Menefee water? Are there shallower waters out here?

9 A Not to our knowledge, sir. There are  
10 shallower oil zones than this, but according to the informa-  
11 tion that I have, and I can't testify firsthand on this,  
12 there are no potable waters in this area that would be --  
13 Mesaverde formation, I believe, is on the surface, or right  
14 at the surface, and so I think you could expect comparable  
15 salinities as soon as you got into the -- the Mesaverde  
16 group.

17 Q Now you said you didn't -- you weren't  
18 able to determine what the plugging program has been on some  
19 of these old wells that have been plugged. But you do know  
20 what the casing and cementing program is on the other wells  
21 that haven't been plugged, particularly the ones that were  
22 drilled by the operator.

23 Memorandum 377, I think it was, or 378,  
24 whatever our memorandum was, concerning injection projects,  
25 required that you submit a listing of all the wells within

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7405

SALLY W. BOYD, C.S.R.  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 435-7409

1 mile of these proposed injection wells, and show the casing and cementing program that was on those. You haven't done that here yet.

A I was not aware of that, I'm sorry.  
We can certainly come up --

Q Would you review that memorandum and send us the information that is required by that memorandum?

A Yes.

Q You can send that information in to us.

MR. NUTTER: Are there any other questions of this witness? He may be excused.

Do you have anything further, Mr. Carr?

MR. CARR: That's all.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 6795?

MR. SINES: I would like to request a copy of the exhibits for the USGS in Farmington.

MR. CARR: Okay, if that's all right, we will mail those to you and I'll get them out this week.

MR. NUTTER: If there is nothing further, we will continue it to the Examiner Hearing scheduled to be held at this same place at 9:00 o'clock a.m. January 30th, 1980.

(Hearing concluded.)

## RETURN OF CERTIFICATION

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

Sally W. Boyd, C.S.R.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7419

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner hearing of Case No. 6795,  
heard by me on 1/16 1980.

[Signature], Examiner  
Oil Conservation Division



BRUCE KING  
GOVERNOR  
LARRY KEHOE  
SECRETARY

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

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

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

Re: CASE NO. 6795  
ORDER NO. R-6304

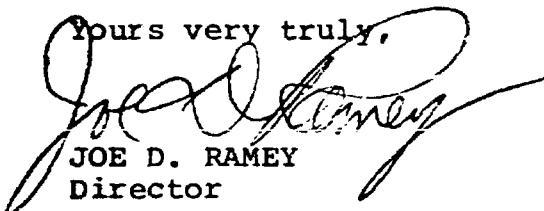
Applicant:

Torreon 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 x  
Artesia OCD x  
Aztec OCD x

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. 6795  
Order No. R-6304

APPLICATION OF TORREON OIL COMPANY  
FOR A WATERFLOOD PROJECT, SANDOVAL  
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 13, 1980, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 31st day of March, 1980, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Torreon Oil Company, seeks authority to institute a waterflood project on its San Luis Lease, San Luis-Mesaverde Oil Pool, by the injection of water into the 1000-foot sand of the Menefee formation through its San Luis Federal Well No. 1, located 1650 feet from the South line and 1980 feet from the West line, and its San Luis Federal Well No. 2, located 2278 feet from the South line and 2296 feet from the West line, both in Section 21, Township 18 North, Range 3 West, NMPM, Sandoval County, New Mexico.

(3) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) 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 from injection, production, or plugged and abandoned wells.

(6) That injection into each of the proposed injection wells should be accomplished through tubing set in a packer as close as is practicable to the uppermost perforations in the 1000-foot sand of the Menefee formation. The casing-tubing annulus in each injection well should be loaded with an inert fluid and a pressure gauge installed to facilitate detection of leakage in the casing, tubing, or packer.

(7) That the injection pressurization system shall be equipped with a pressure limitation switch or other acceptable device which will limit the surface injection pressure to 200 psi unless the Division Director shall have administratively authorized a higher injection pressure after adequate showing by the applicant that such higher pressure will not fracture the confining strata.

(8) That although there are several wells in the general area which have casing and cementing programs or plugging and abandonment programs which are either known and of questionable integrity, or are unknown, it is believed that due to their depth (to the 600-foot shallow Menefee sand) or their distance from the two proposed injection wells, they will present no hazard to any underground water supply during flooding operations in the 1000-foot Menefee sand, provided however there is one well which should be further investigated, and if necessary, re-entered to ensure the integrity of its plugging program.

(9) That said well is identified as the Myers King Well No. 1-X, located 1100 feet from the South line and 2475 feet from the West line of Section 21, Township 18 North, Range 3 West, NMPM, and was drilled to a reported depth of approximately 945 feet before being plugged in an unknown manner.

(10) That prior to commencing its proposed water injection program, applicant should establish to the satisfaction of the Supervisor of the Aztec District Office of the Division that said well is plugged in such a manner as to prevent it from becoming an avenue of escape for waters injected into the 1000-foot Menefee sand, either by substantial documentation of the plugging operations performed on said well or by re-entering and, if necessary, re-plugging said well.

-3-

Case No. 6795  
Order No. R-6304

(11) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Torreon Oil Company, is hereby authorized to institute a waterflood project on its San Luis Federal Lease, San Luis Mesaverde Oil Pool, by the injection of water into the 1000-foot sand of the Menefee formation through the following described wells in Section 21, Township 18 North, Range 3 West, NMPM, Sandoval County, New Mexico:

San Luis Federal Well No. 1, 1650 feet from South line and 1980 feet from West line

San Luis Federal Well No. 2, 2278 feet from South line and 2296 feet from West line

(2) That injection into each of said wells shall be through tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the injection pressurization system shall be equipped with a pressure limitation switch or other acceptable device which will limit the surface injection pressure to no more than 200 psi provided however, that the Division Director shall have authority to approve a higher injection pressure limitation upon an adequate showing by the operator that such higher pressure will not result in the fracturing of the confining strata.

(4) That the operator shall immediately notify the supervisor of the Division's Aztec district office of the failure of the tubing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(5) That the subject waterflood project is hereby designated the Torreon San Luis Mesaverde Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Division Rules and Regulations.

-4-

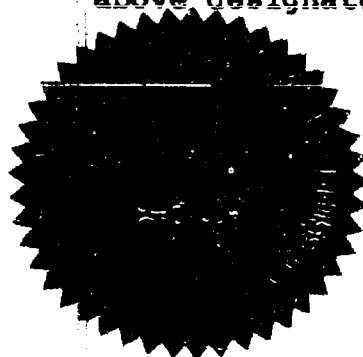
Case No. 6795  
Order No. R-6304

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 704 and 1120 of the Division Rules and Regulations.

(7) That prior to the commencement of injection operations, the operator shall establish to the satisfaction of the Supervisor of the Aztec District Office of the Division that the Myers King Well No. 1-X, located 1100 feet from the South line and 2475 feet from the West line of Section 21, Township 18 North, Range 3 West, NMPM, is plugged in such a manner as to prevent it from becoming an avenue of escape for waters injected into the 1000-foot sand of the Menefee formation, either by substantial documentation of the plugging operations on said well or by re-entering said well and, if necessary, re-plugging the well.

(8) 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.



S E A L

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

*Joe D. Ramey*  
JOE D. RAMEY  
Director

fd/

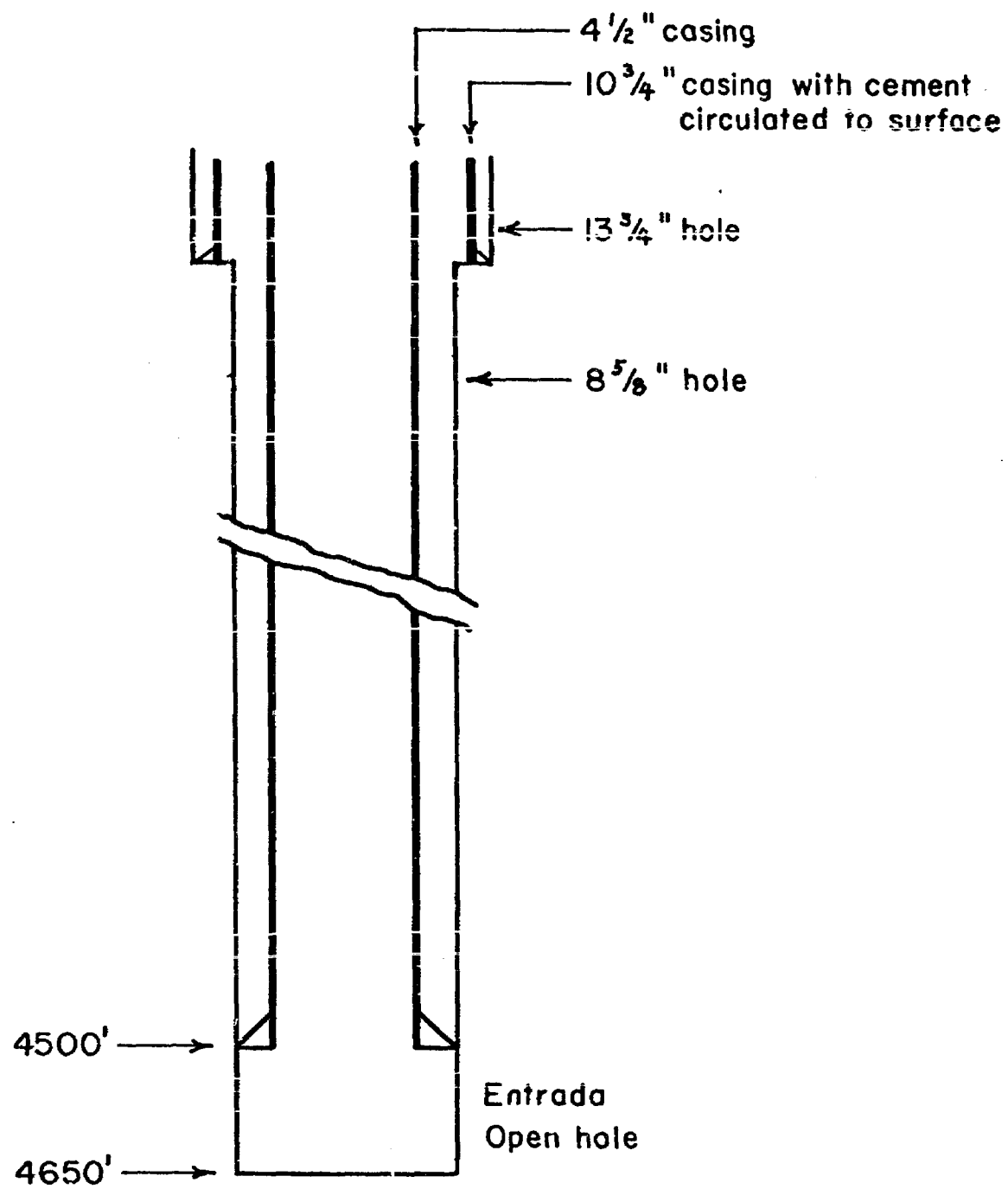
# Memo

From  
D. S. NUTTER  
CHIEF ENGINEER

To

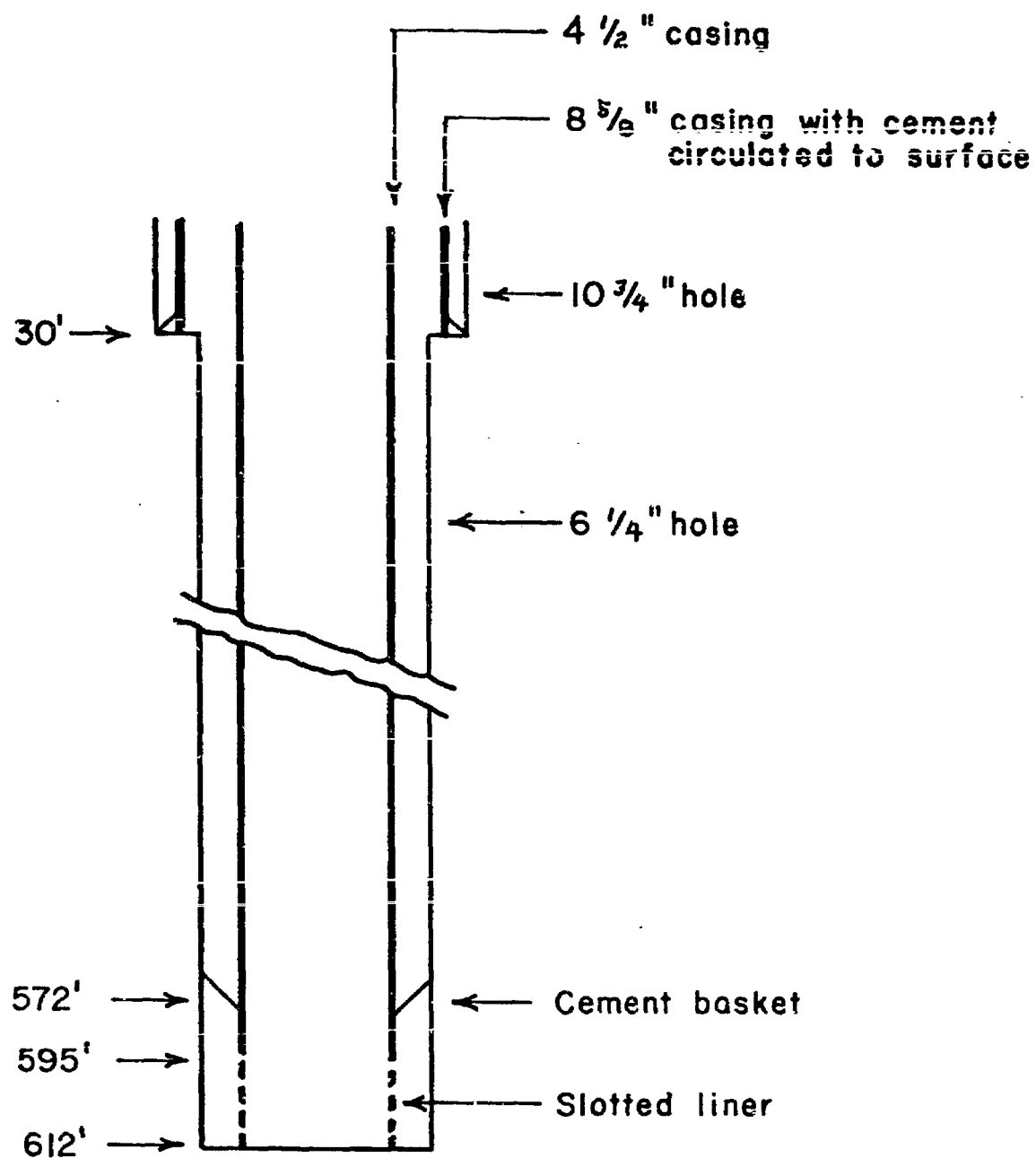
Case 6795  
Exhibits 1 thru 9  
and Supplemental  
Data submitted  
after the hearing  
complete

TORREON OIL COMPANY  
(PETROLEUM DEV. COMPANY)  
San Luis Federal Well No. 1  
1980 FSL 2010 FEL  
Section 21, T18N, R3W  
Sandoval County, New Mexico  
(Water Source Well)



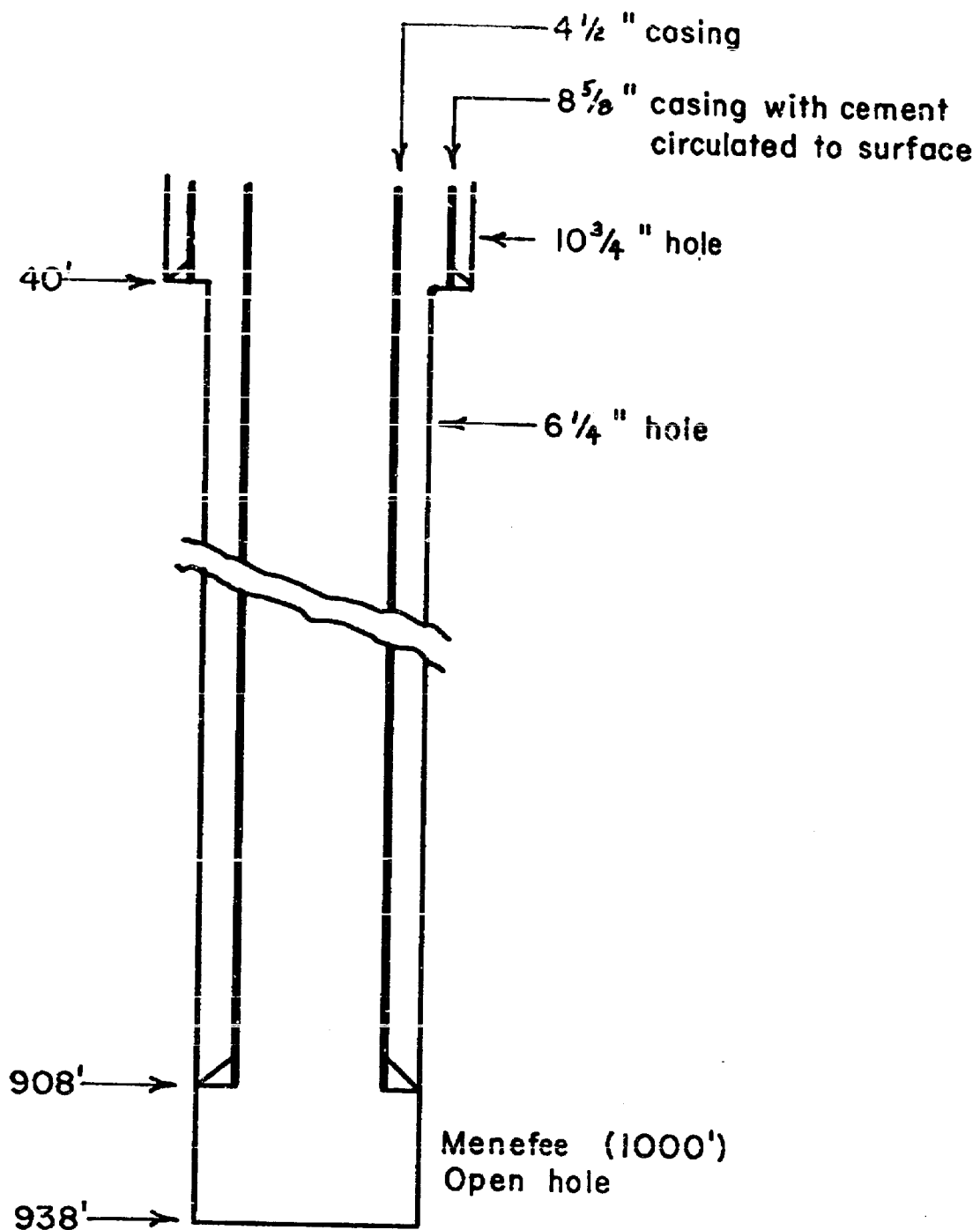
# TORREON OIL COMPANY

San Luis Federal Well No. 3  
2164 FSL 1600 FEL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico



# TORREON OIL COMPANY

(HARVEY — Harvey A# 3)  
San Luis Federal Well No. 12  
1862 FSL 2171 FEL  
Section 21, T18 N, R3 W  
Sandoval County, New Mexico





TORREON OIL COMPANY

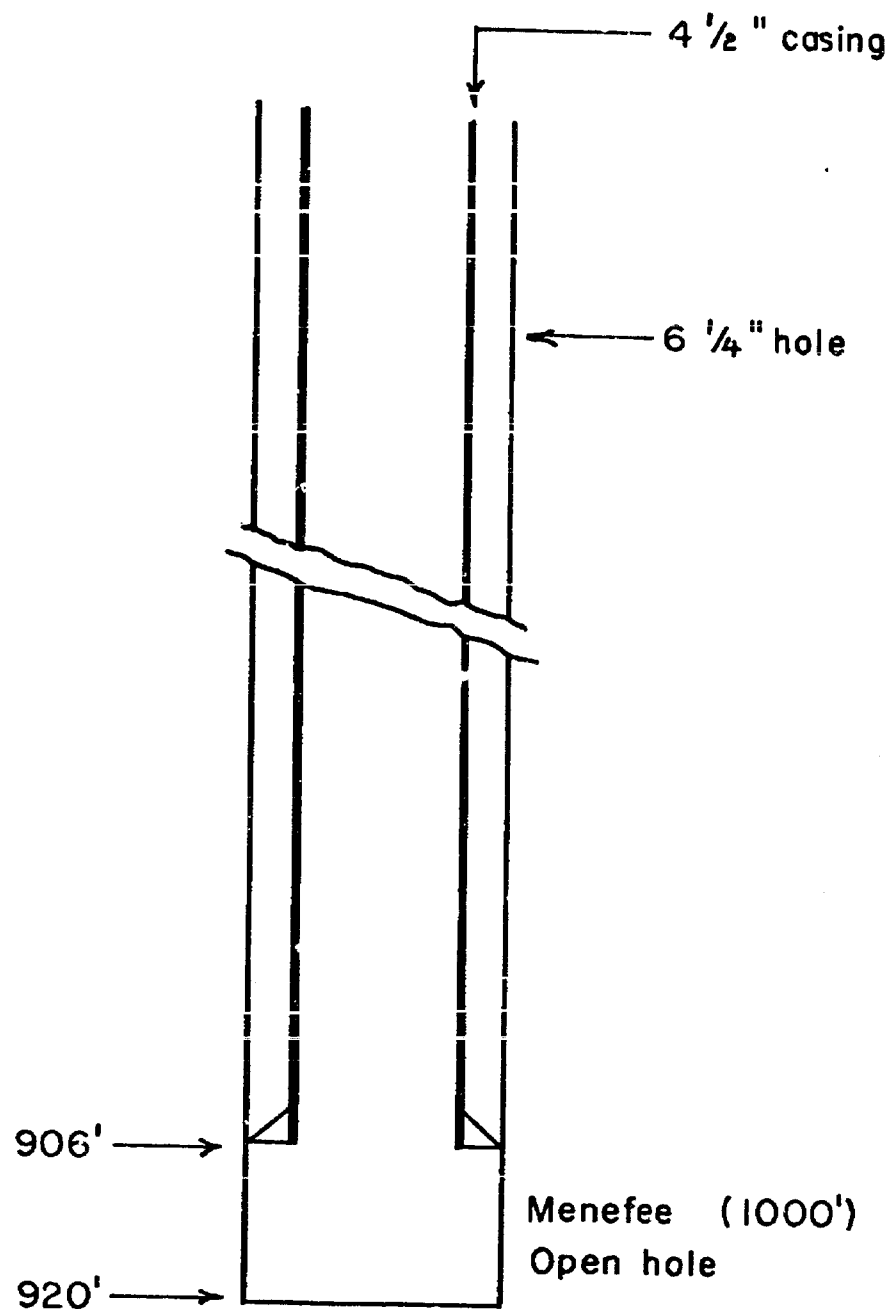
(HARVEY - Harvey A # 4)

San Luis Federal Well No. 13

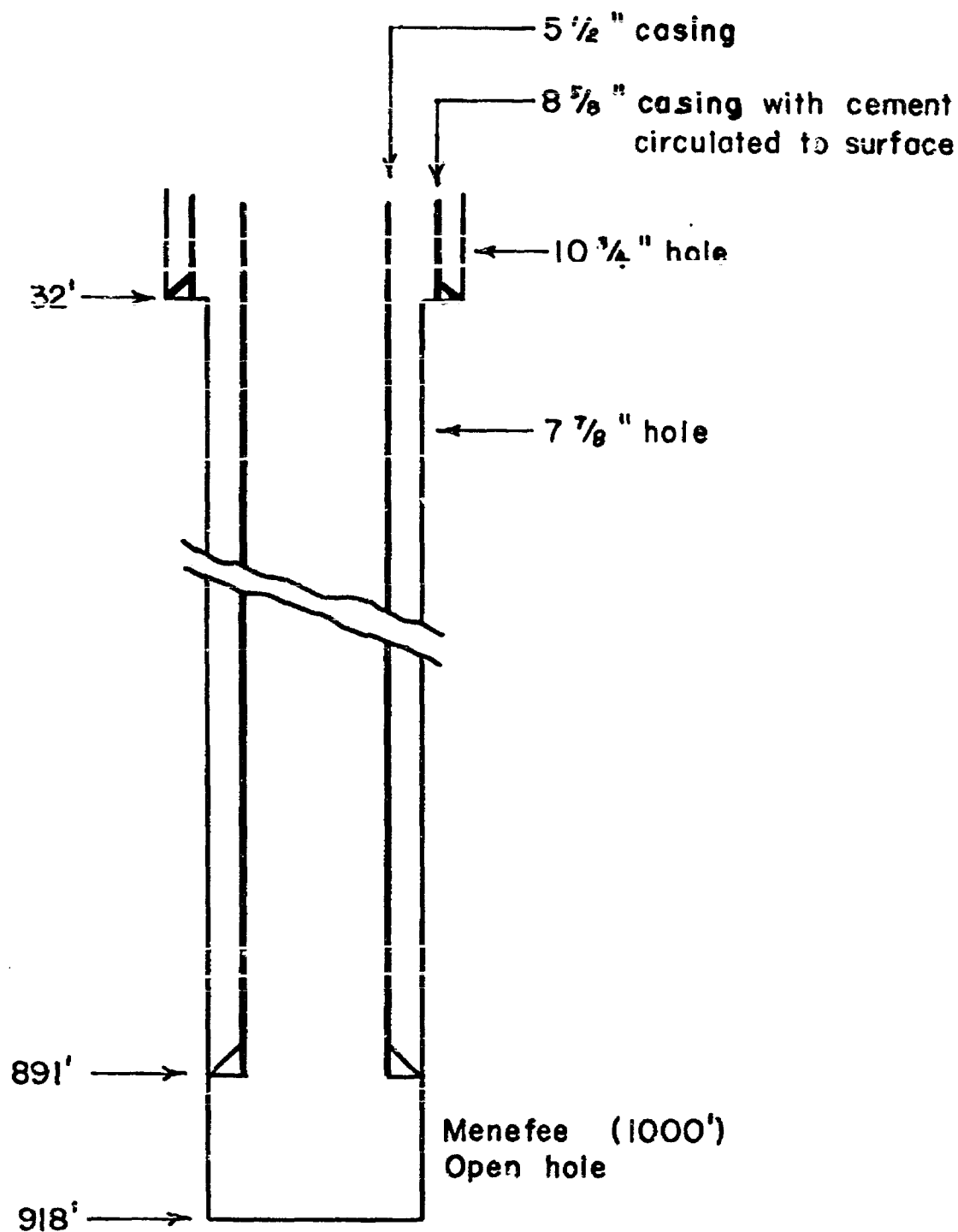
1691 FSL 1701 FEL

Section 21, T 18 N, R 3 W

Sandoval County, New Mexico



TORREON OIL COMPANY  
(HARVEY - Harvey A # 1)  
San Luis Federal Well No. 11  
1424 FSL 2294 FEL  
Section 21, T18N, R3W  
Sandoval County, New Mexico



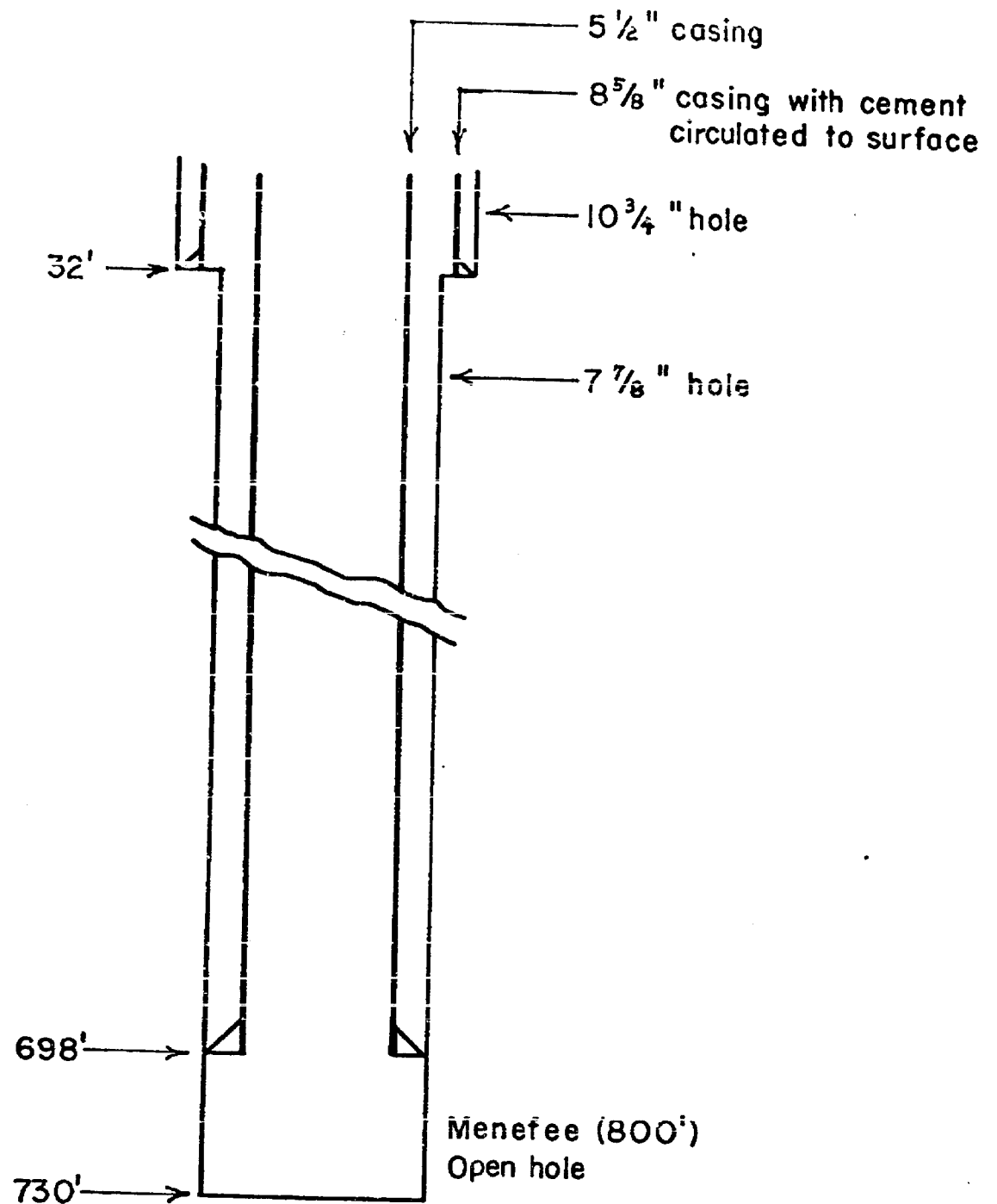
TORREON OIL COMPANY

(HARVEY - Harvey A # IX )

San Luis Federal Well No. 14

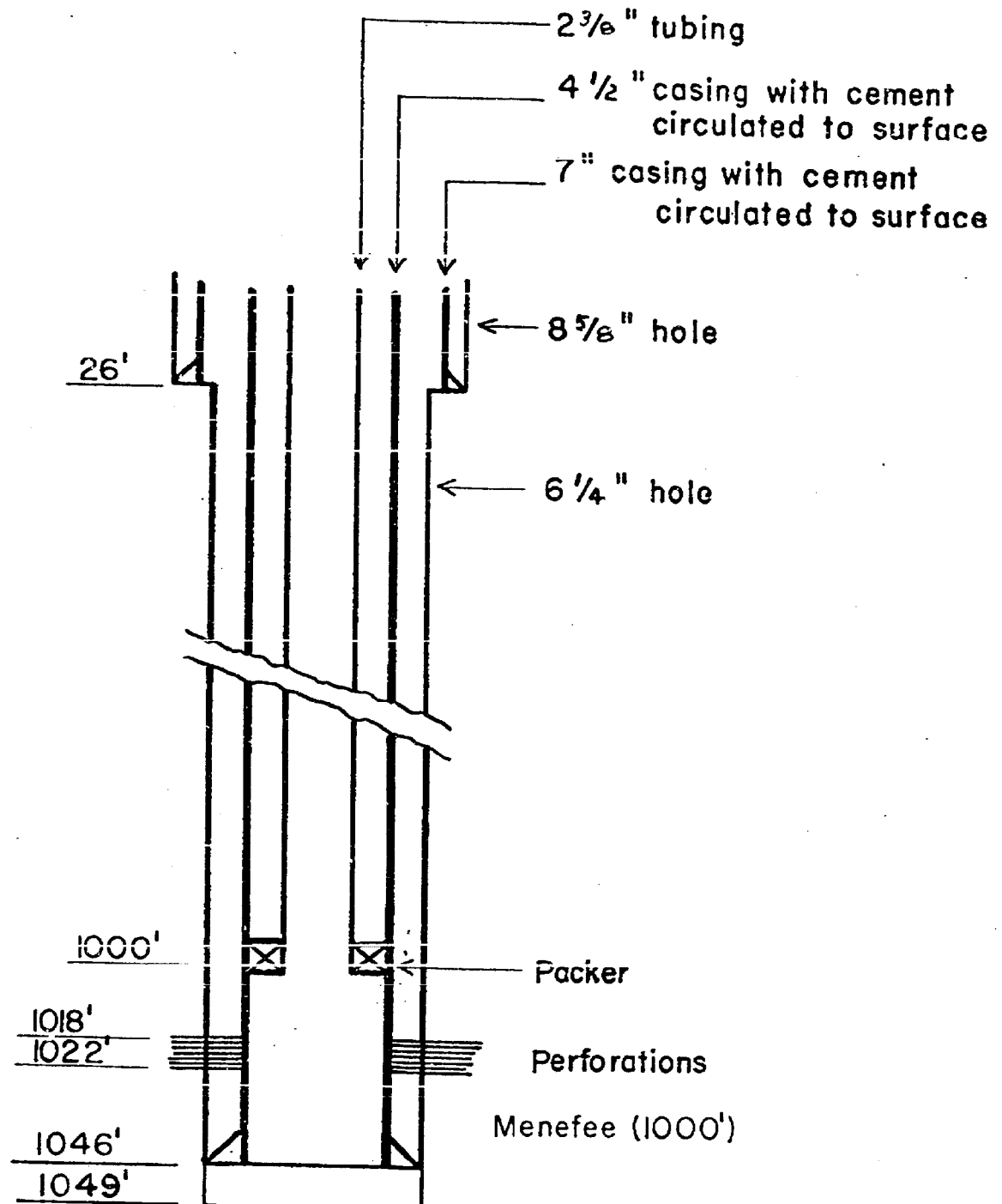
1670 FSL 2309 FEL  
Section 21, T 18 N, R 3 W

Sandoval County, New Mexico



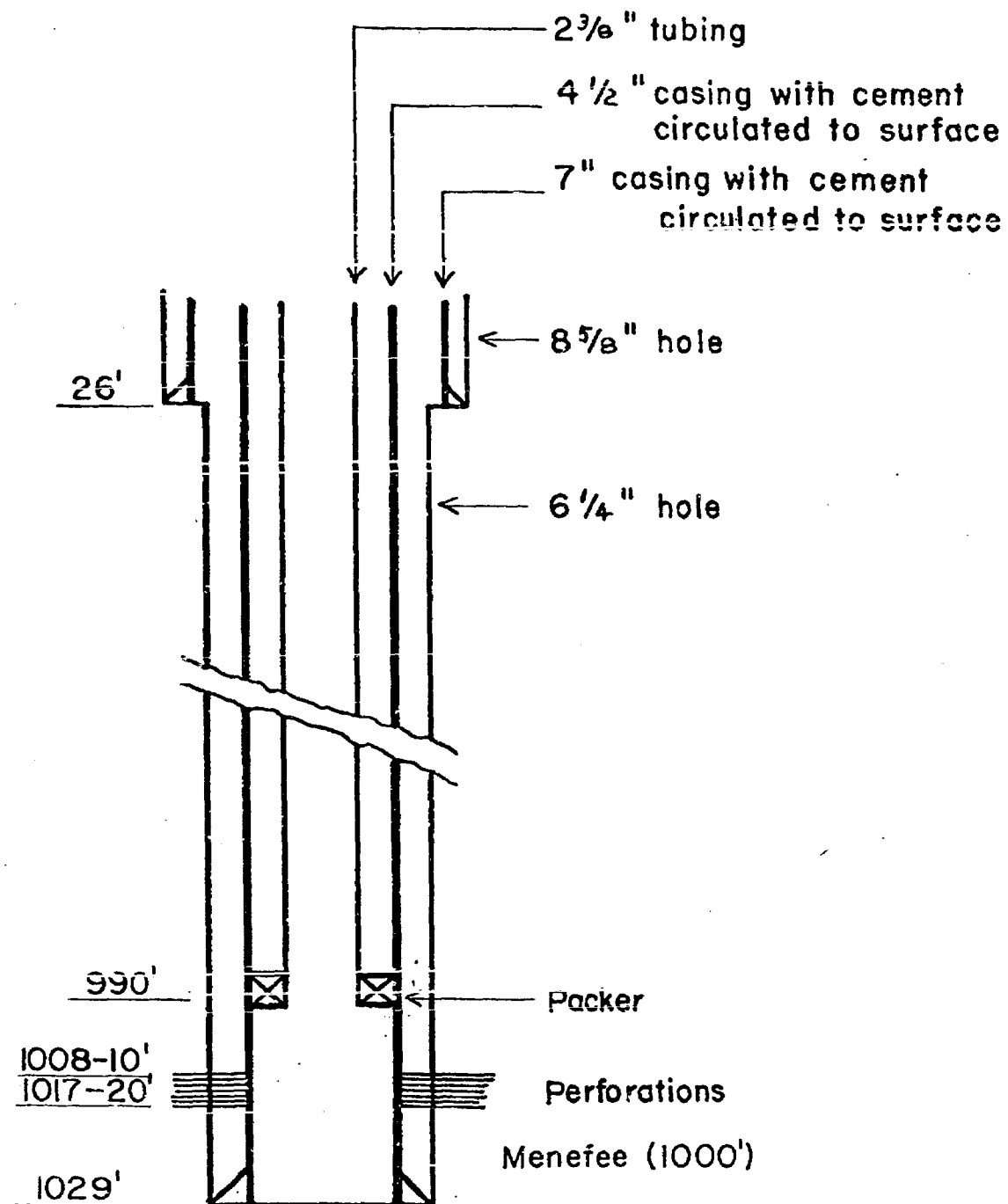
# TORREON OIL COMPANY

San Luis Federal Well No. 4 (Alt.)  
 2490' FS L 2310' FE L  
 Section 21, T 18 N, R 3 W  
 Sandoval County, New Mexico  
 Elevation 6776' GL



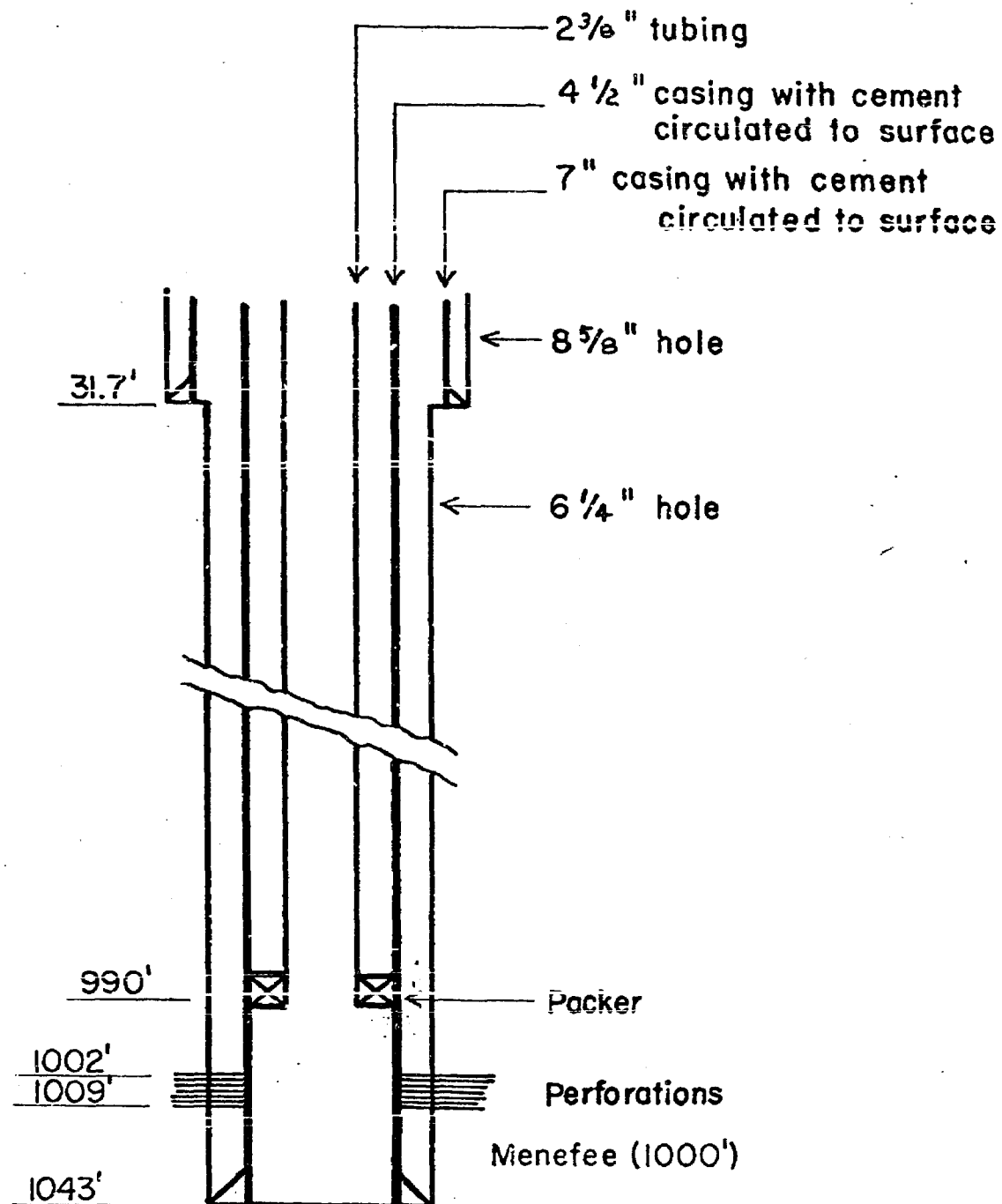
# TORREON OIL COMPANY

San Luis Federal Well No. 5  
2490' FSL 1470' FEL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6736 GL



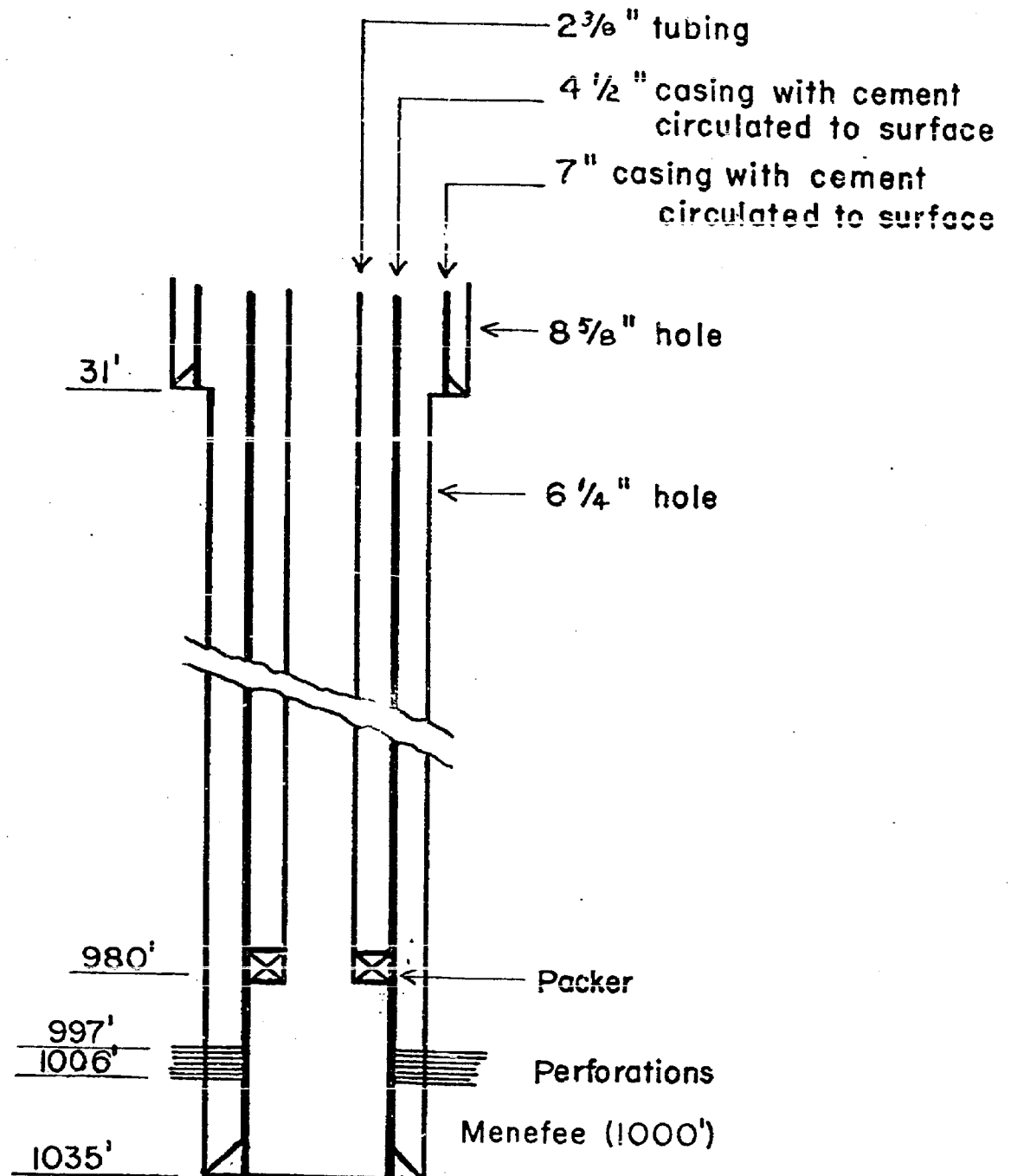
# TORREON OIL COMPANY

San Luis Federal Well No. 1  
1650' FS L 1980' FWL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6750' GL



# TORREON OIL COMPANY

San Luis Federal Well No. 2  
2278' FSL 2296' FWL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6749' GL



# TORREON OIL COMPANY

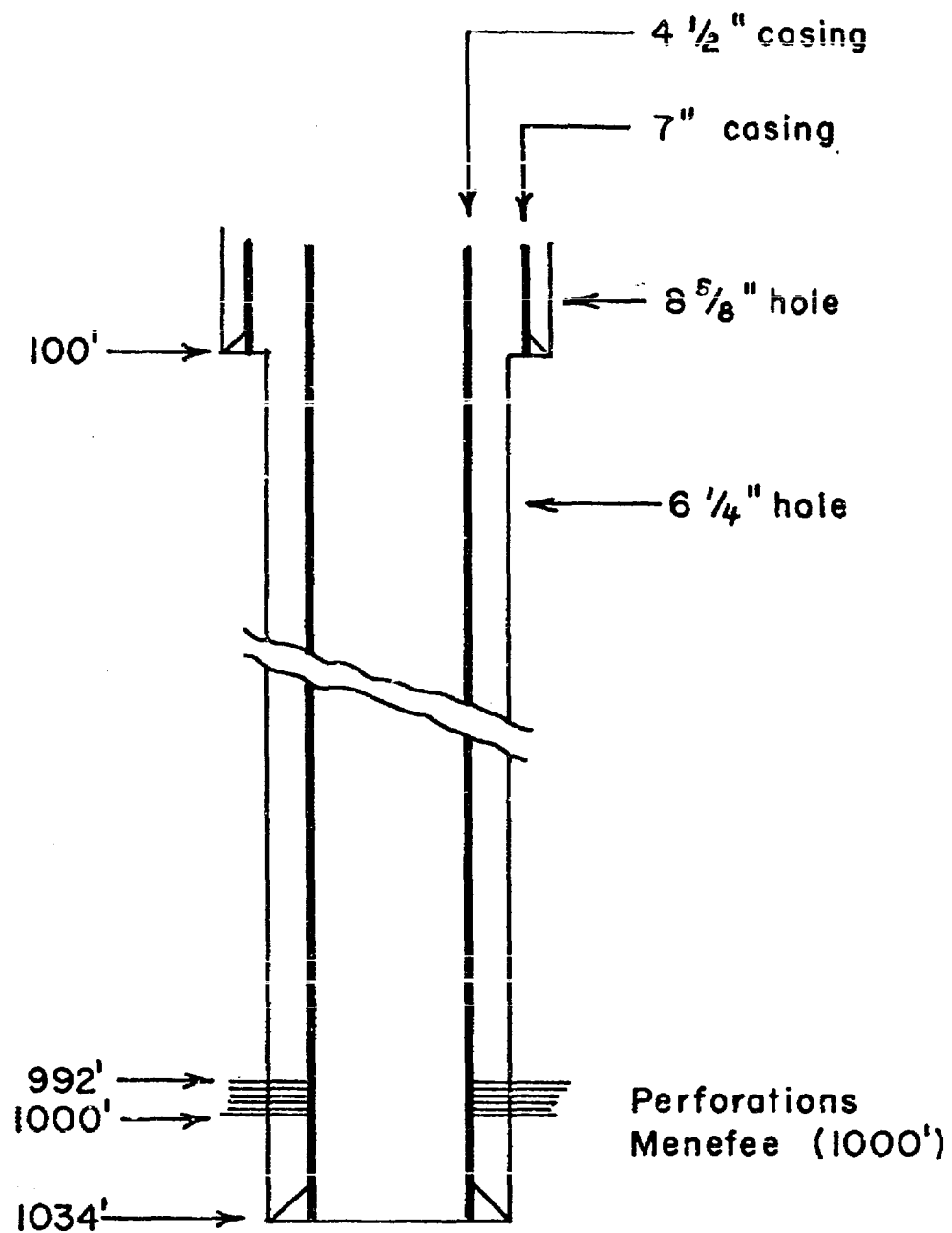
(HARVEY — Federal #1)

San Luis Federal Well No. 15

1520 FSL 2340 FWL

Section 21, T18 N, R3 W

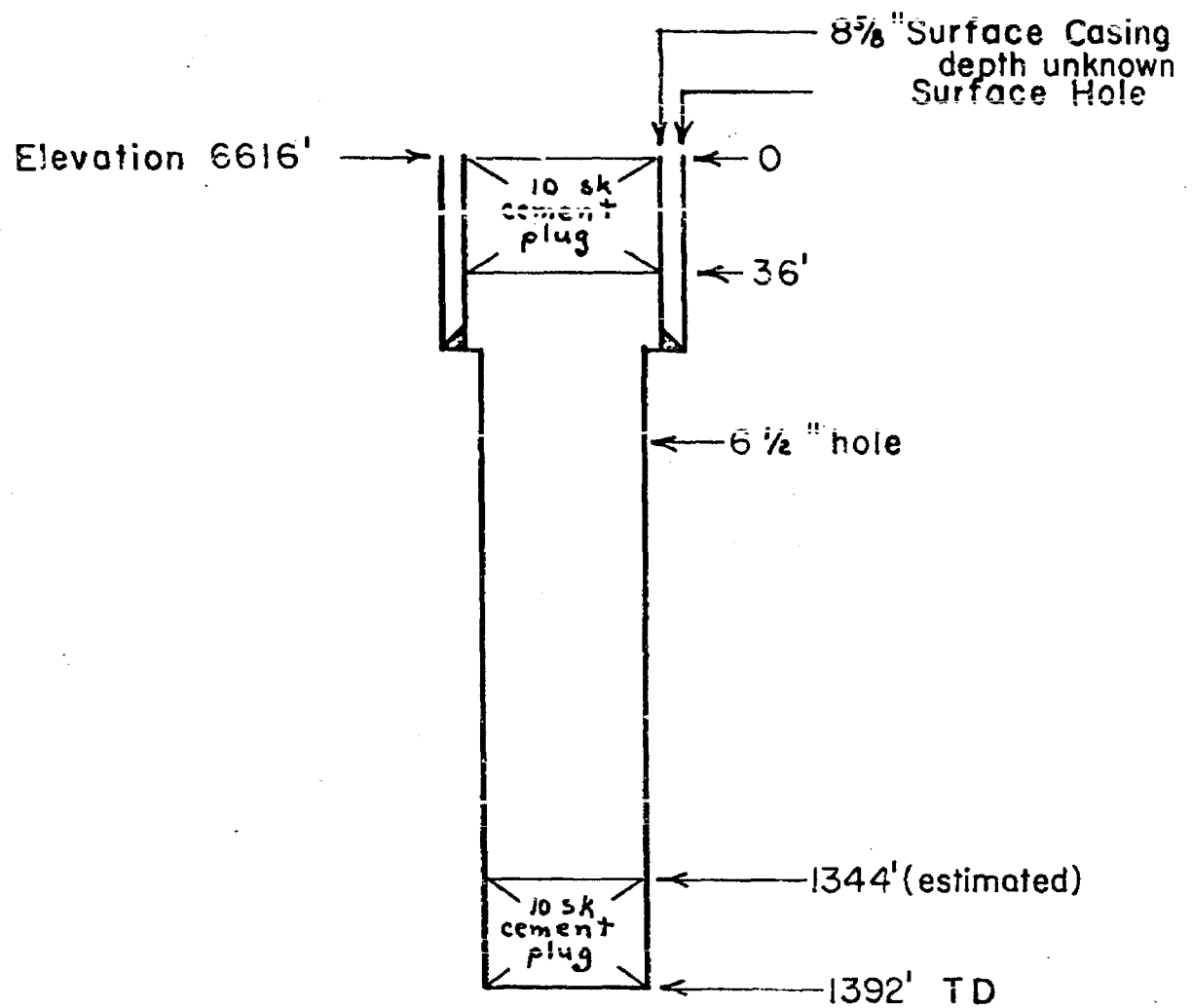
Sandoval County, New Mexico





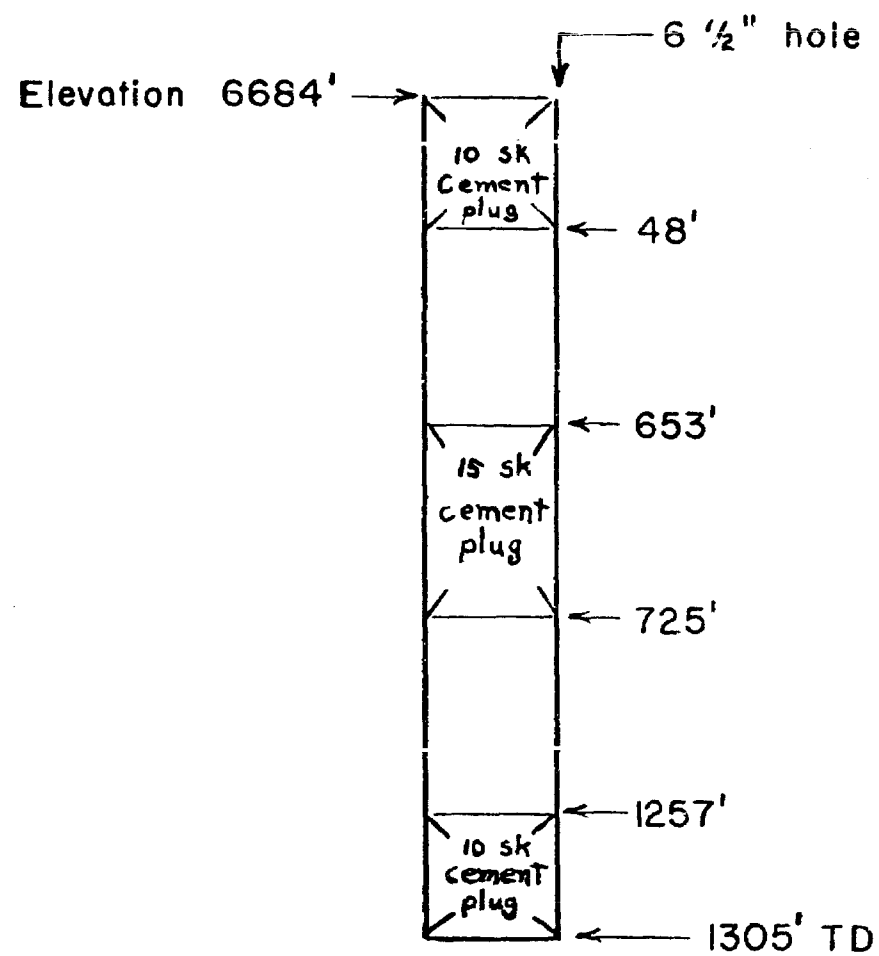
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HUGHES ROLLINS #1  
1485' FSL 165' FEL  
Section 20, Township 18 N, Range 3W  
Sandoval County, New Mexico



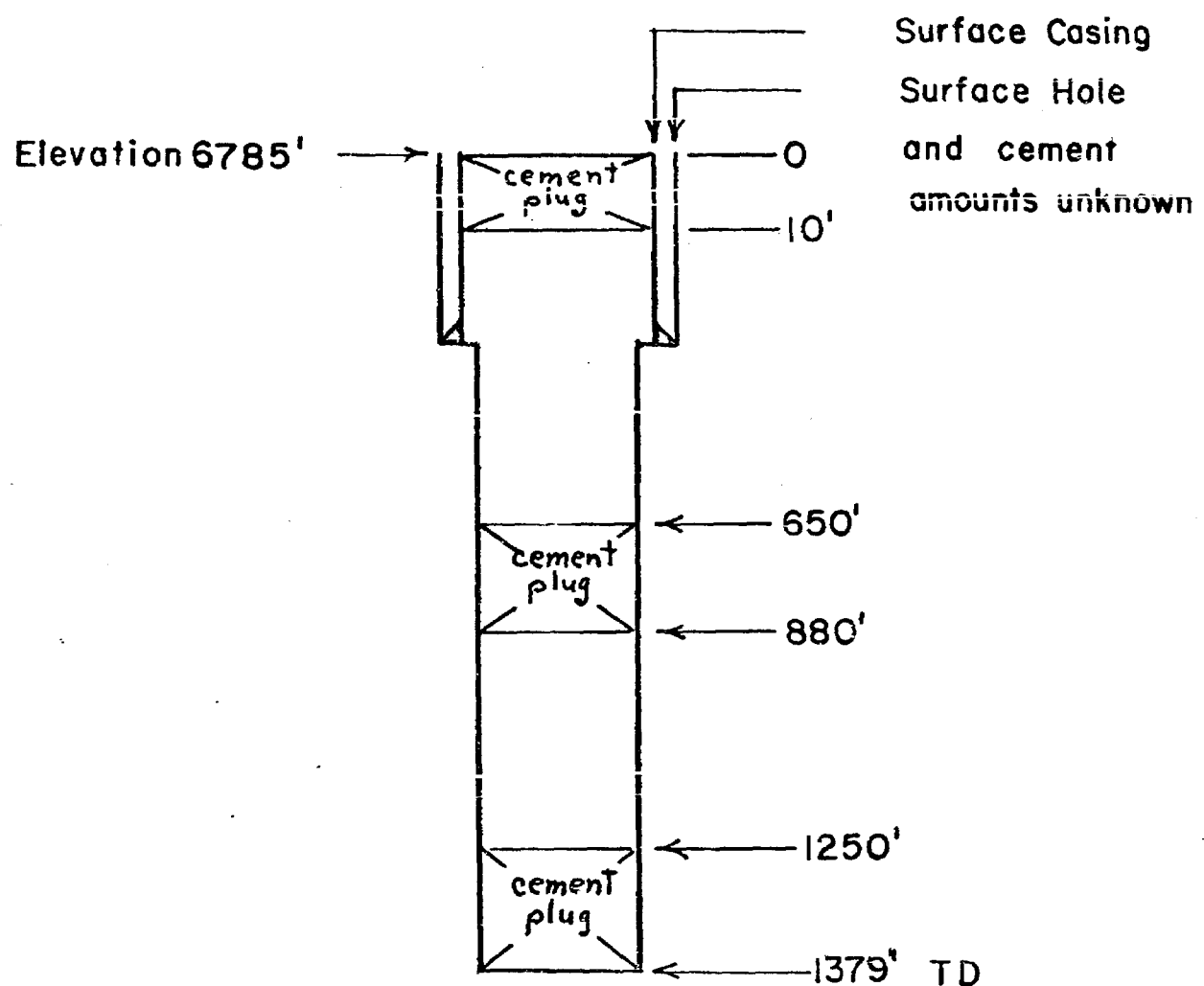
SAN LUIS FIELD  
ABANDONED WELL—PLUGGING DIAGRAM

ROLLINS DODGEN #1  
2475' FNL 1155' FWL  
Section 21, T18N, R3W  
Sandoval County, New Mexico



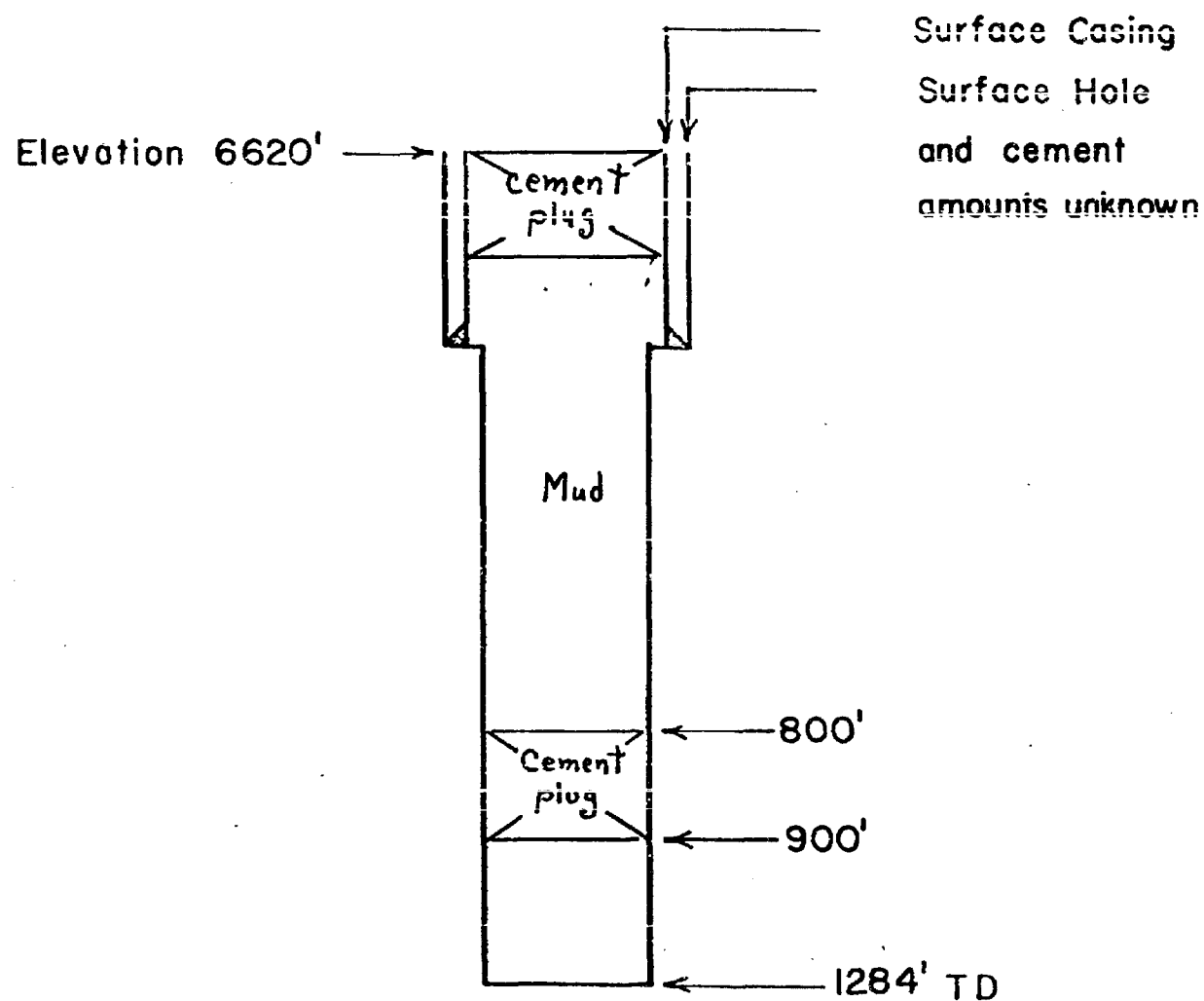
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HARVEY GARTNER WARD #5  
2475' FNL 2310' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



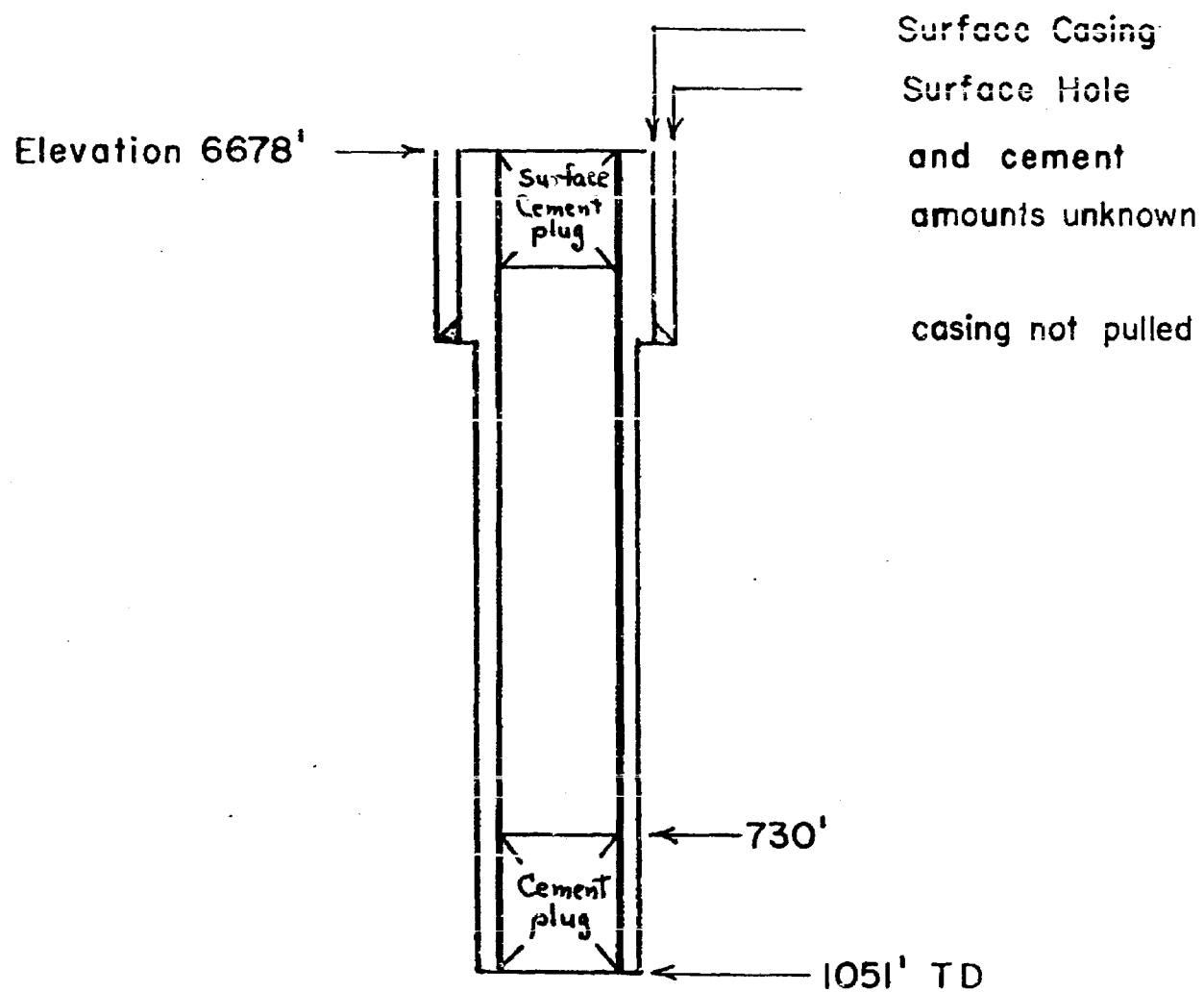
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

UMBERGER — GARTNER #1  
1915' FNL 429' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



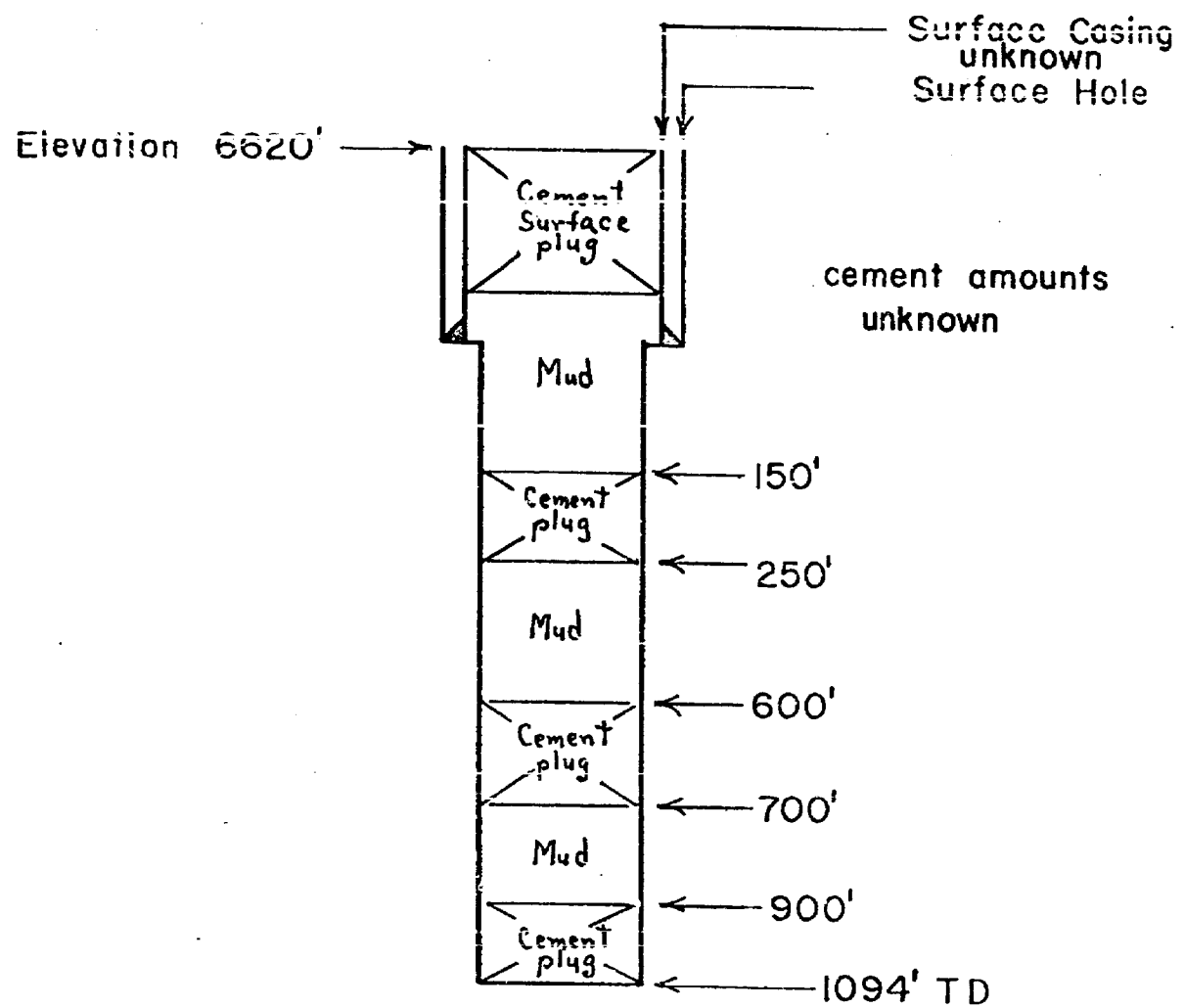
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

UMBERGER GARTNER # 2  
1980' FNL 509' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



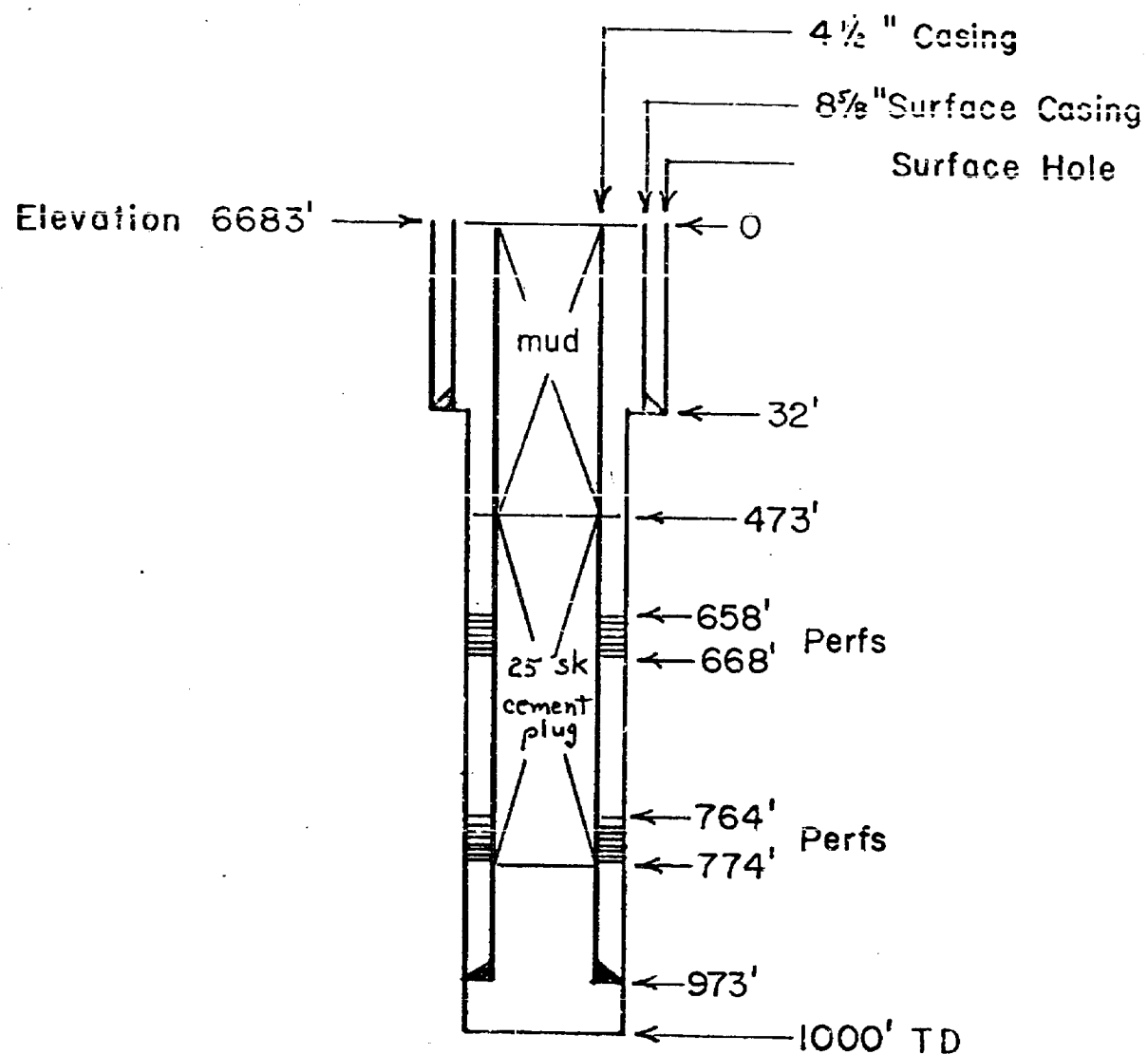
SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

HARVEY GARTNER #3  
2310' FNL 990' FEL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



# SAN LUIS FIELD ABANDONED WELL — PLUGGING DIAGRAM

RISING FEDERAL #3  
 1485' FSL 1155' FWL  
 Section 21, Township 18 N, Range 3W  
 Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

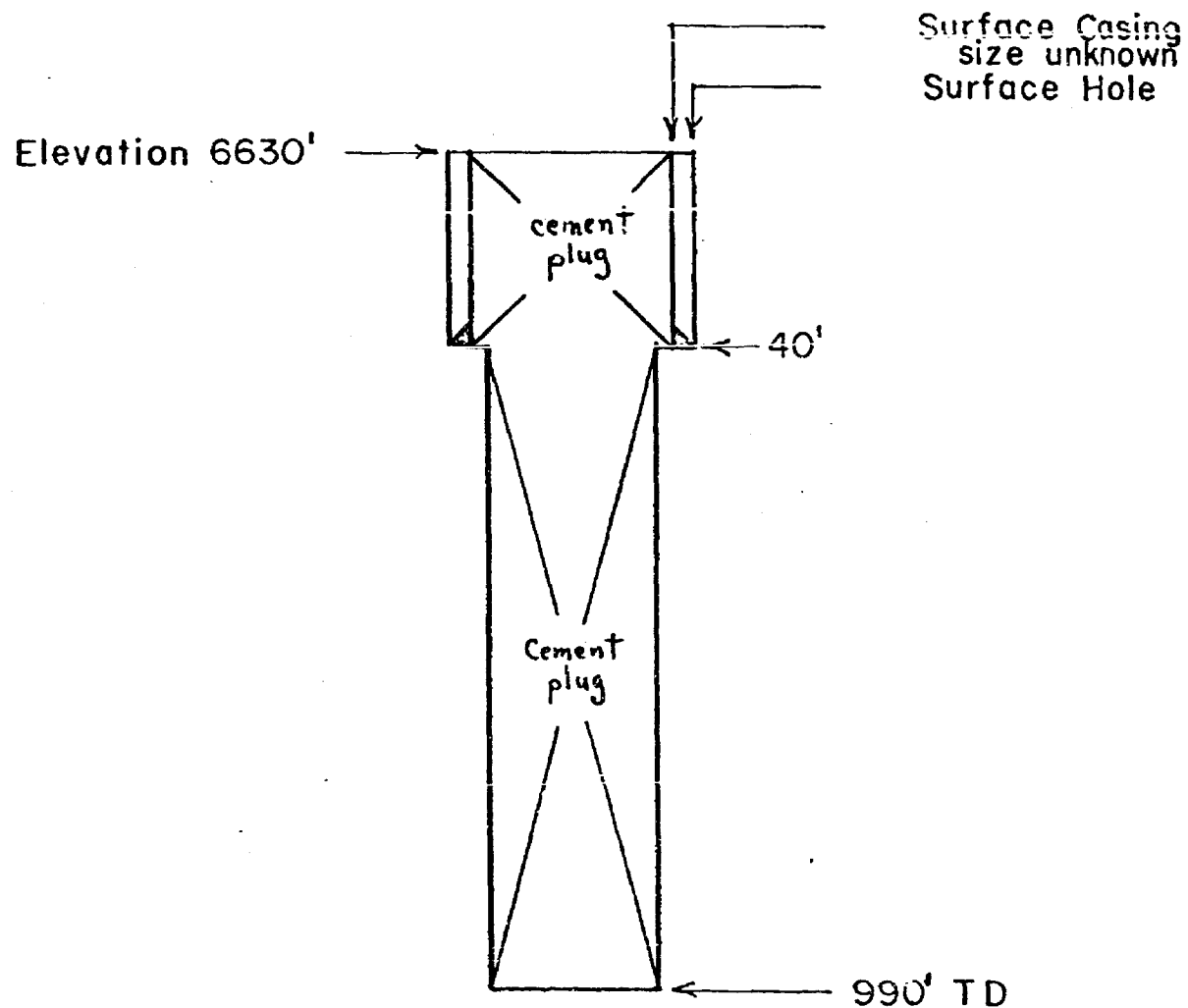
WOOSLEY FEDERAL #1

330' FSL

990' FWL

Section 21, Township 18 N, Range 3W

Sandoval County, New Mexico

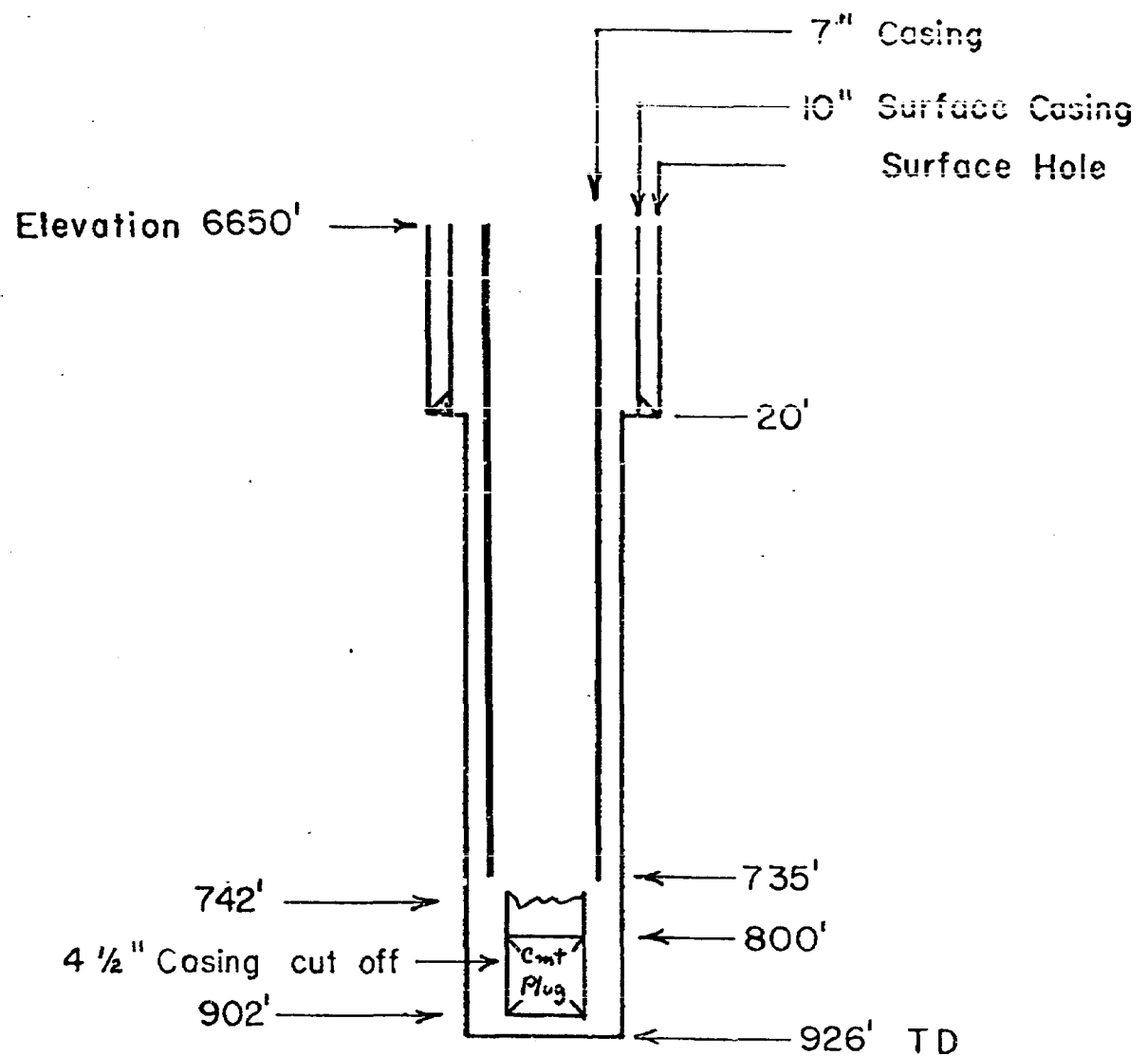




SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

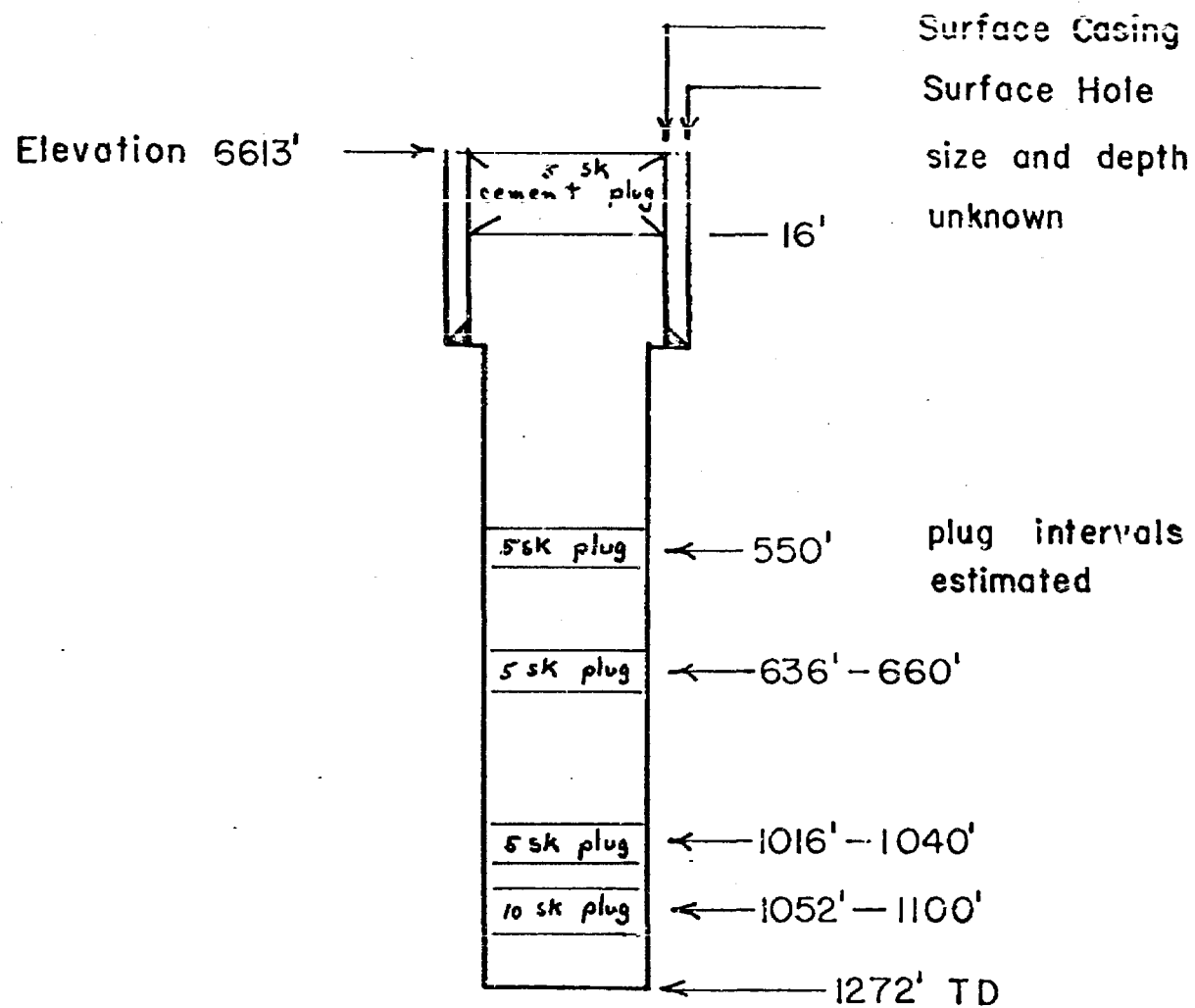
MYERS — KING #1

1155' FSL      2475' FWL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



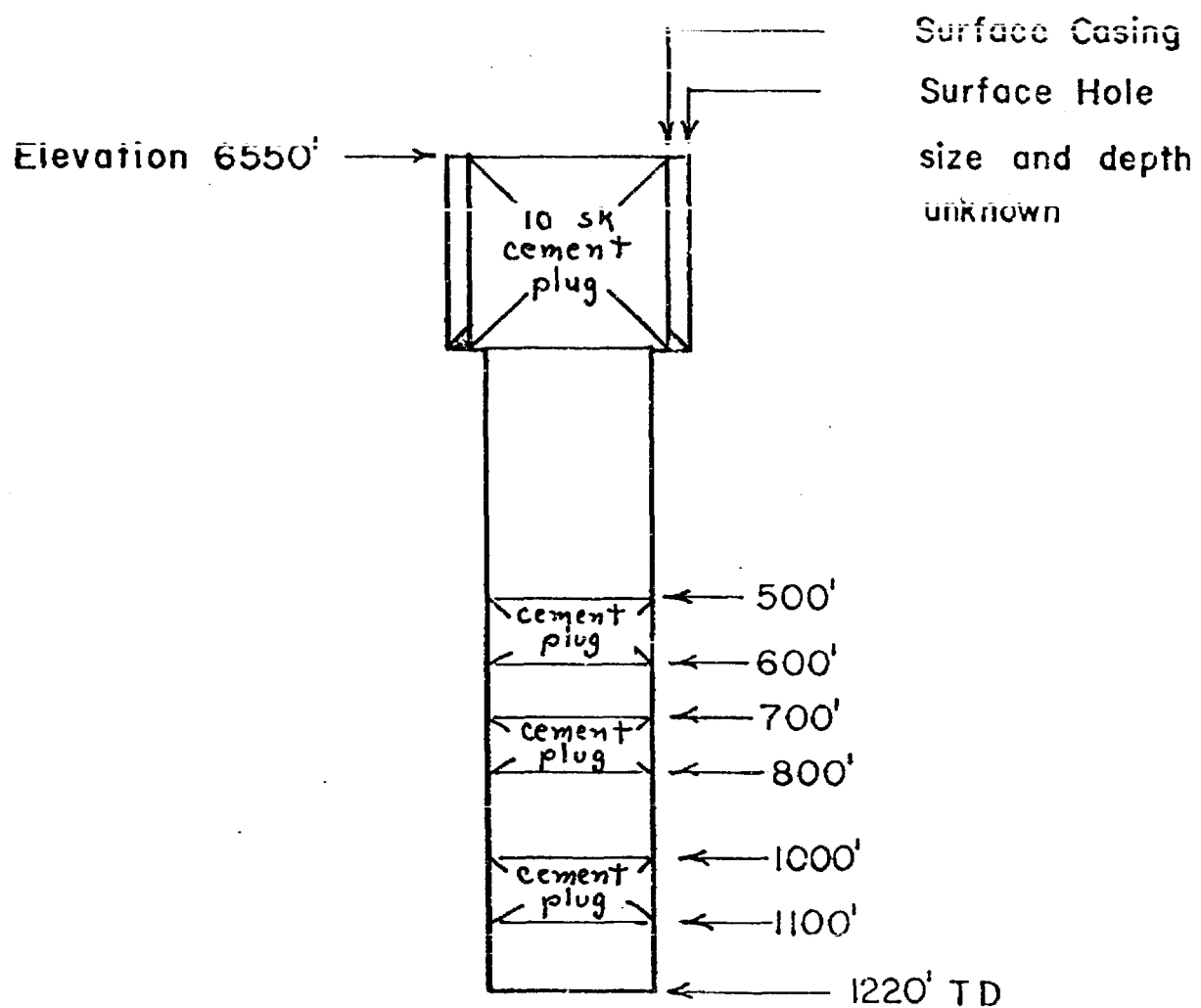
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HOLMES — HOLMES A #1  
660' FNL 547' FE L  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



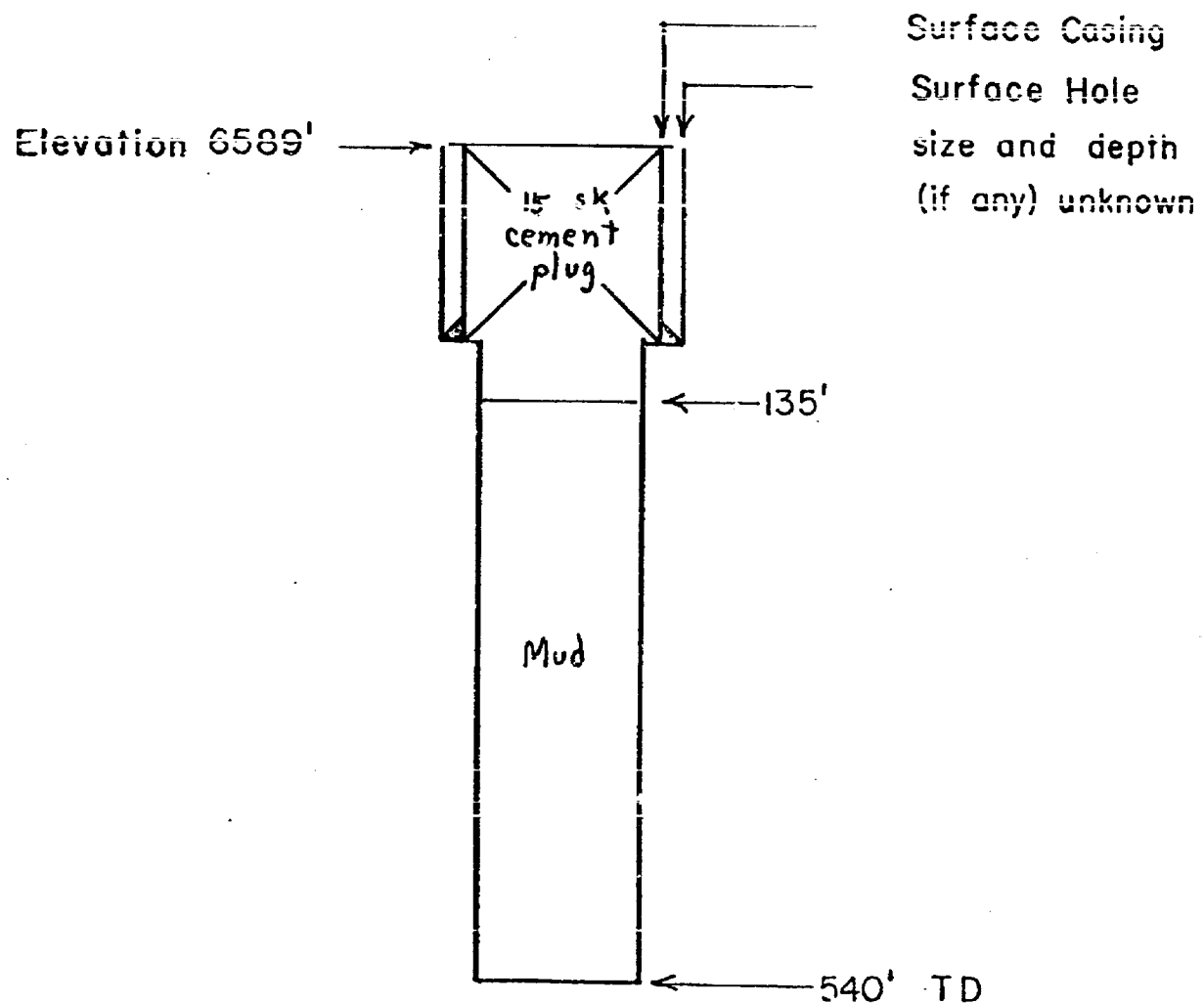
# SAN LUIS FIELD ABANDONED WELL -- PLUGGING DIAGRAM

HOLMES -- ROREX FEDERAL #1  
660' FNL 1980' FE L  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



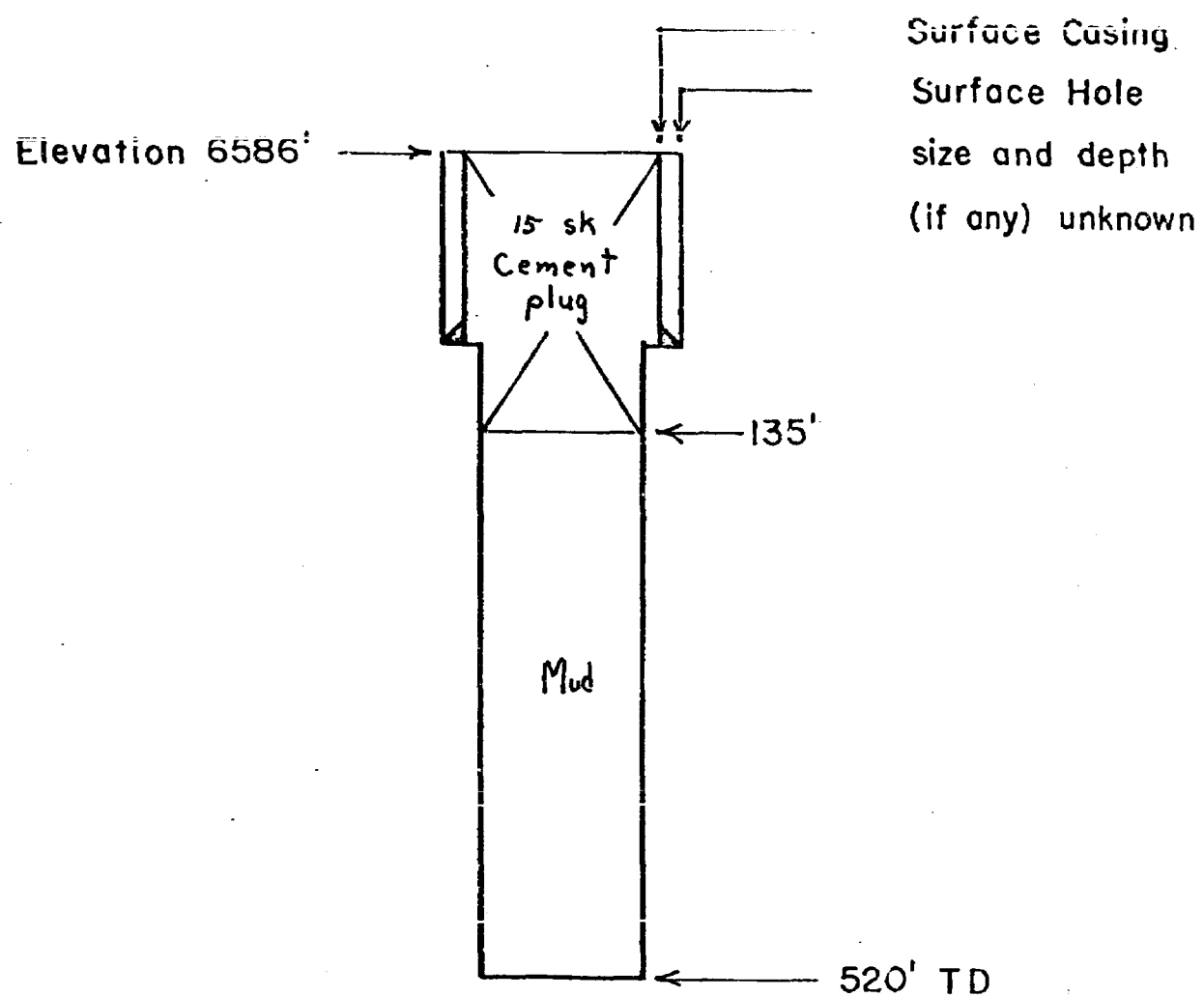
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

RISING FEDERAL # 1  
165' FNL 2145' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



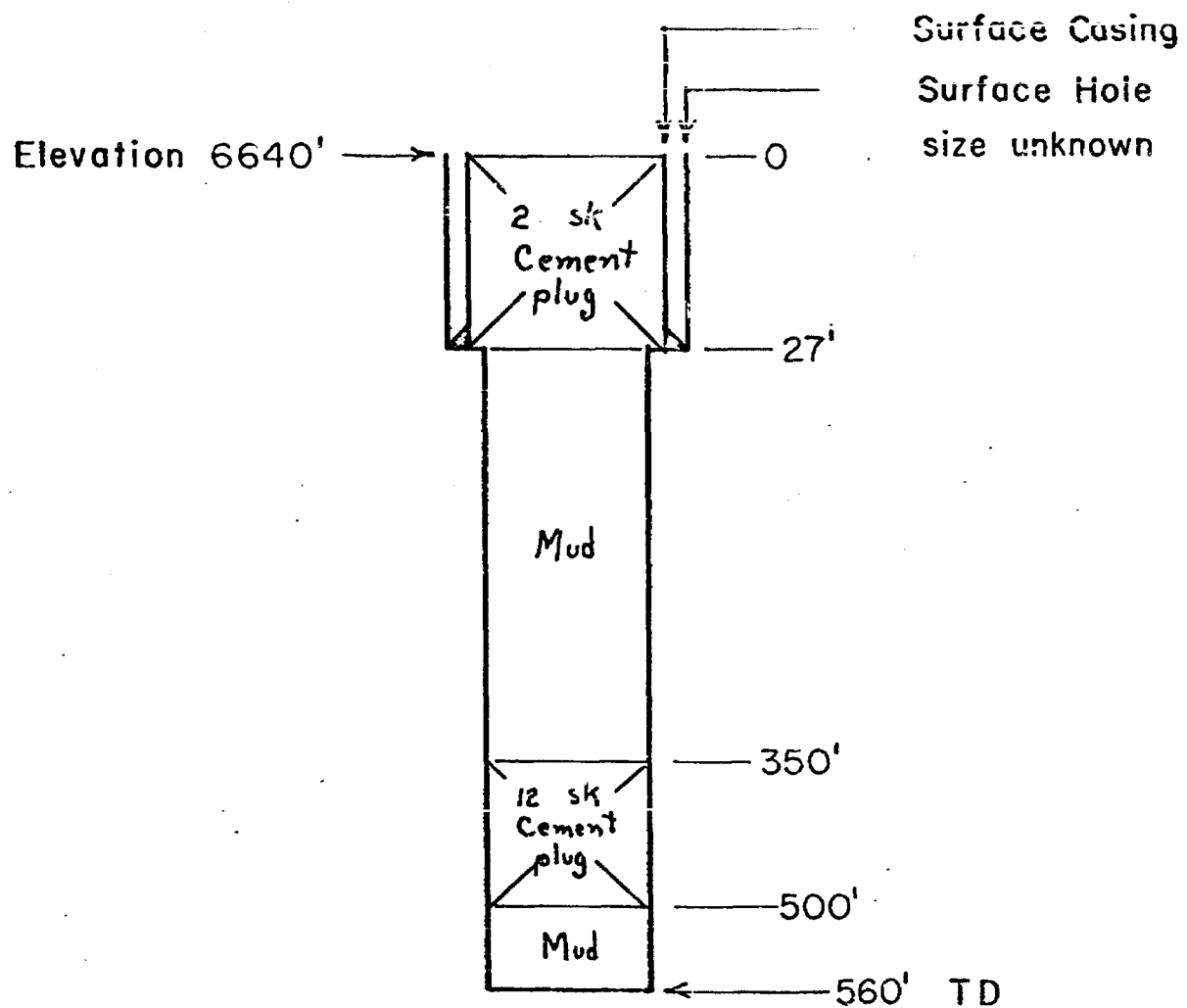
# SAN LUIS FIELD ABANDONED WELL - PLUGGING DIAGRAM

RISING - FEDERAL #2  
495' FNL 1815' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

MORROW — ROLLINS — DODGEN #2  
165' FNL 1140' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

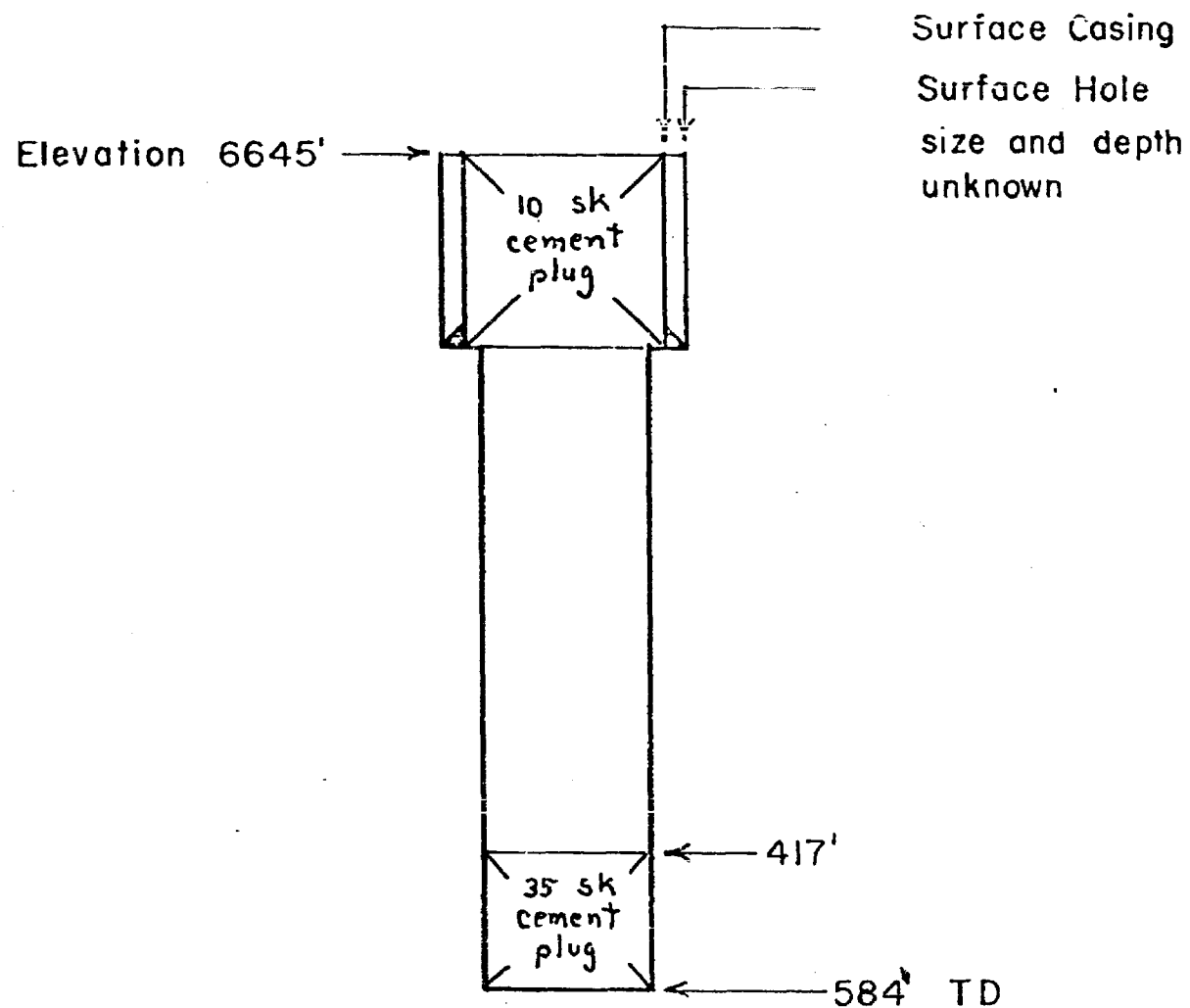
ROLLINS-DODGEN #3

495' FNL

1155' FWL

Section 28, Township 18 N, Range 3W

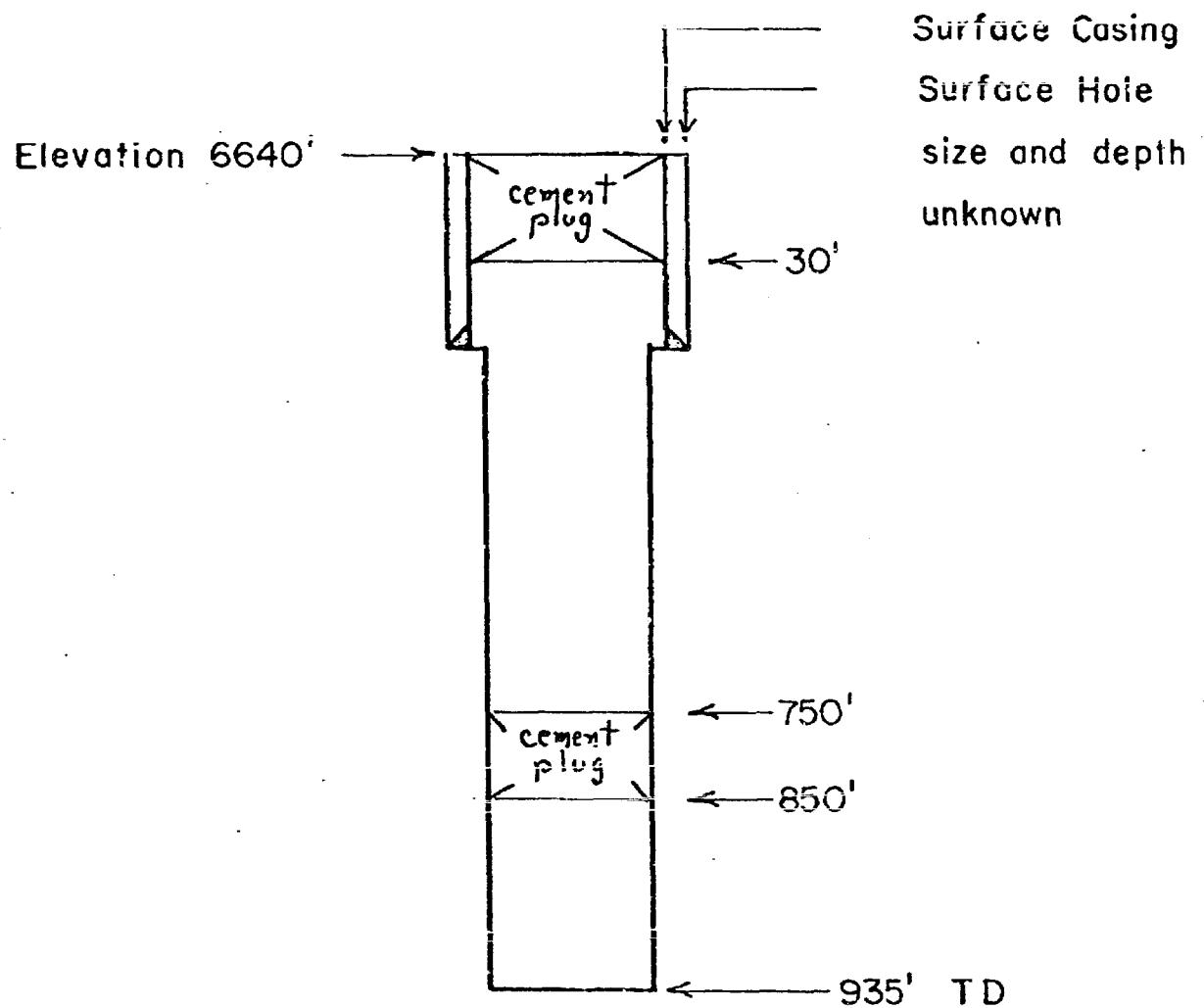
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

EL PAMCO — MYRA #3

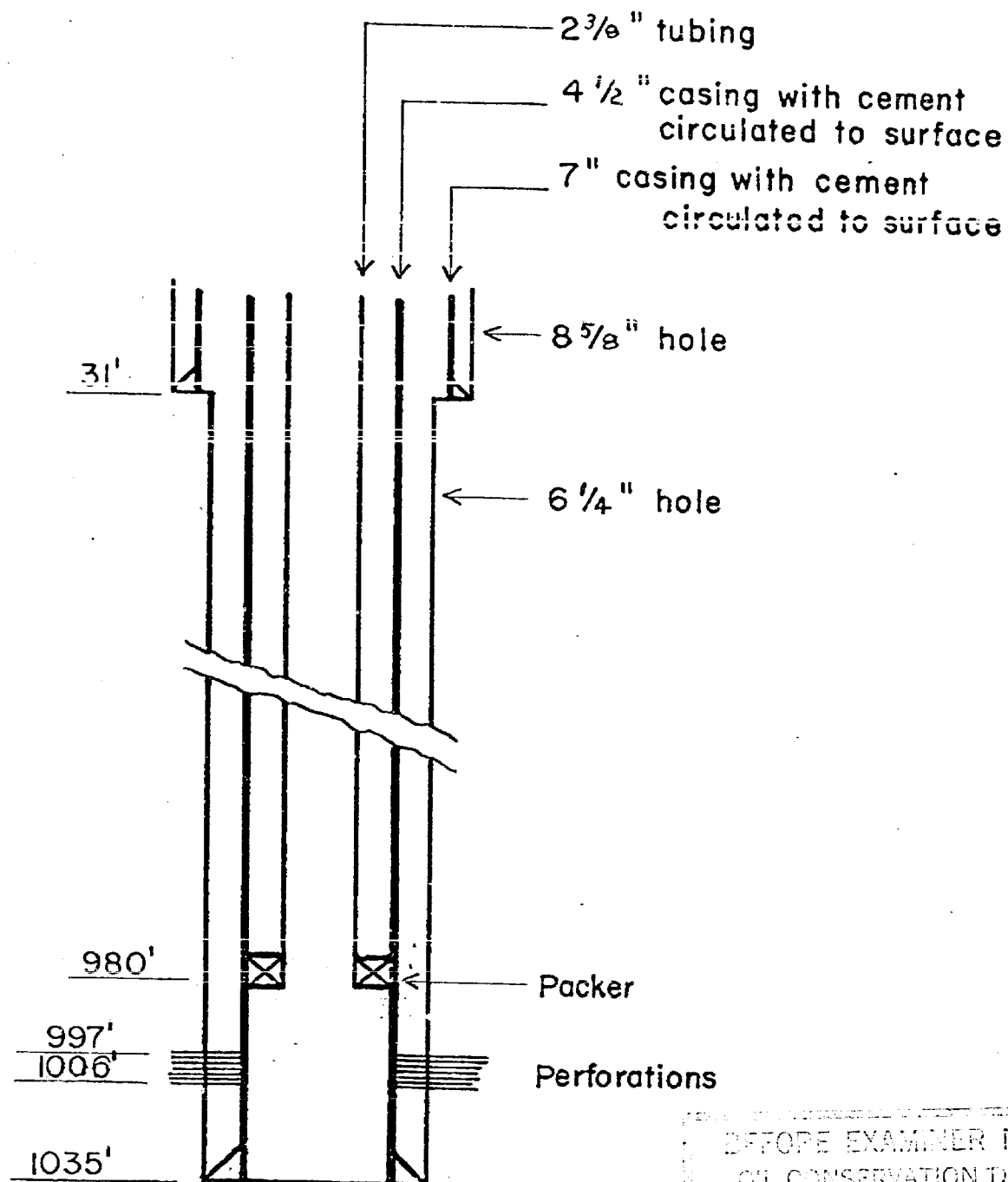
660' FNL 330' FE L  
Section 29, Township 18 N, Range 3W  
Sandoval County, New Mexico





# TORREON OIL COMPANY

San Luis Federal Well No. 2  
2278' FSL 2296' FWL  
Section 21, T18N, R3W  
Sandoval County, New Mexico  
Elevation 6749' GL



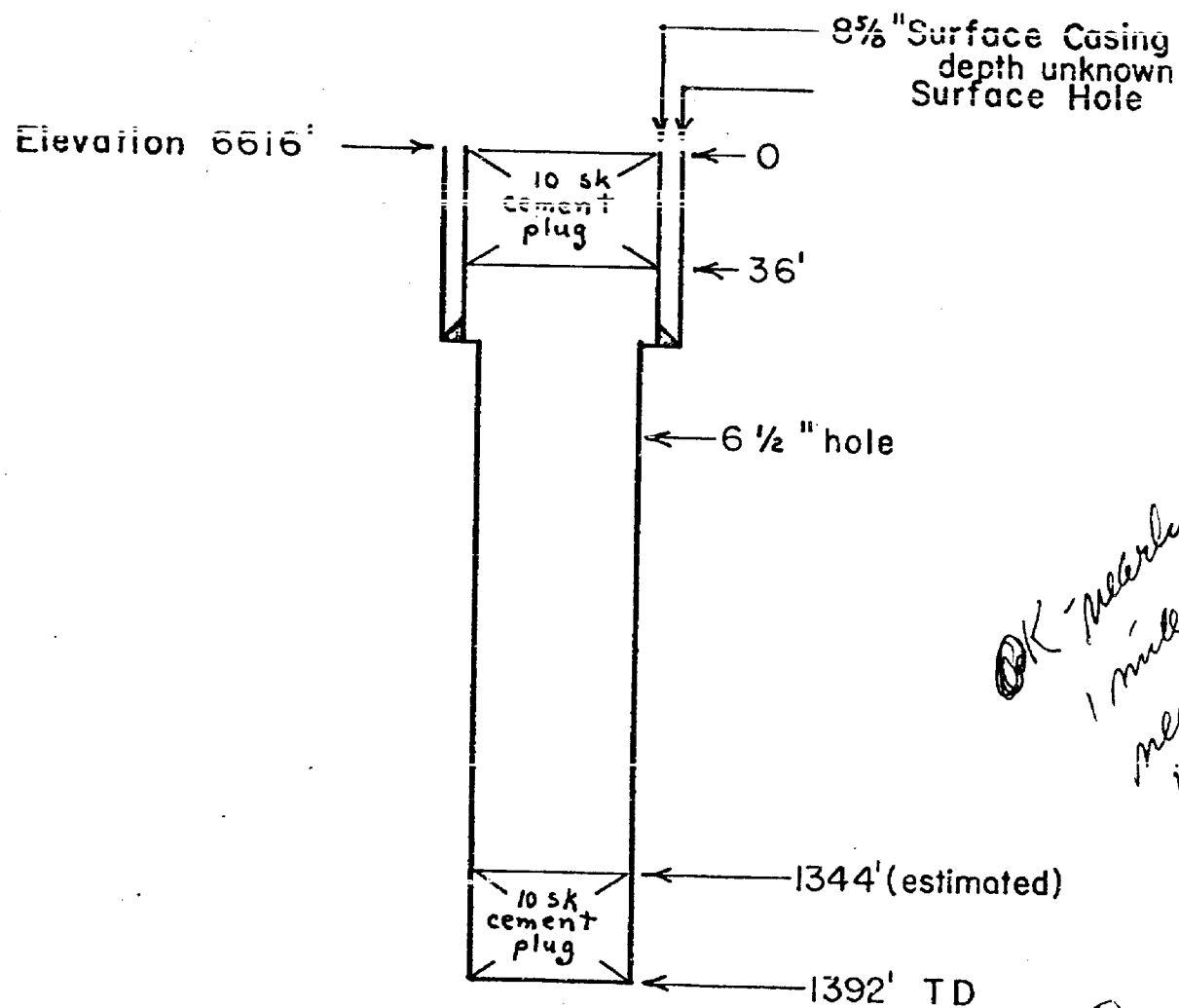
OFFICE EXAMINER NUTTER  
OIL CONSERVATION DIVISION

TORREON EXHIBIT NO. 7

CASE NO. 6795

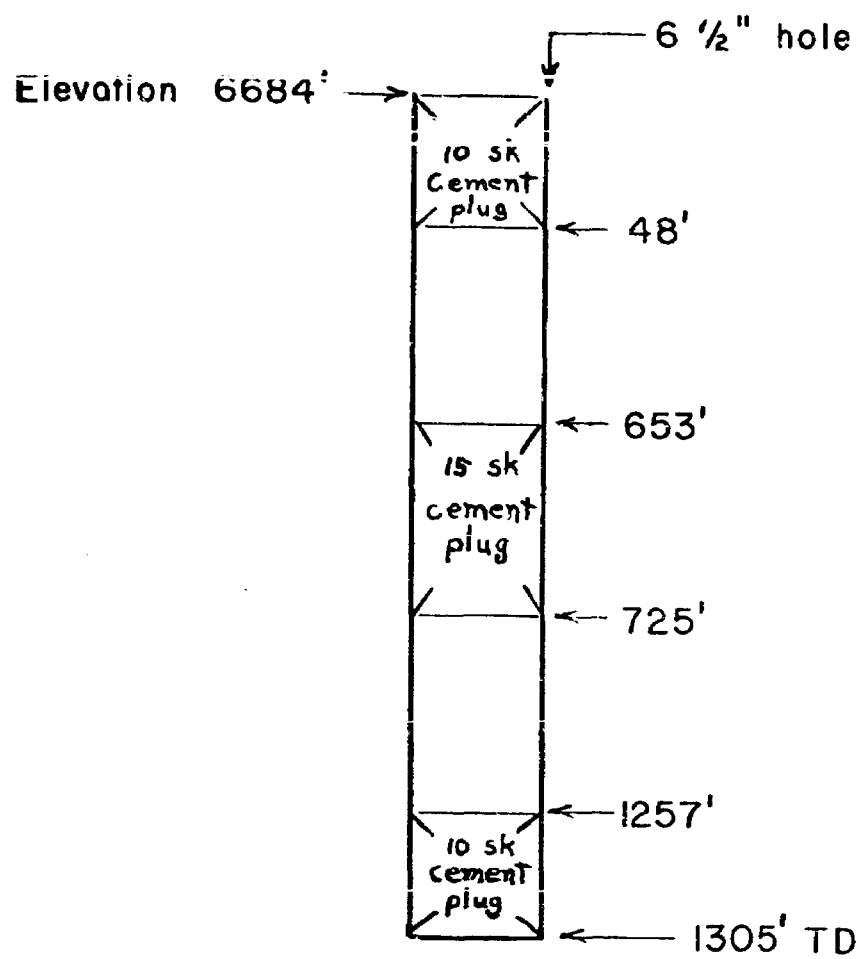
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HUGHES ROLLINS #1  
1485' FSL 165' FEL  
Section 20, Township 18 N, Range 3W  
Sandoval County, New Mexico



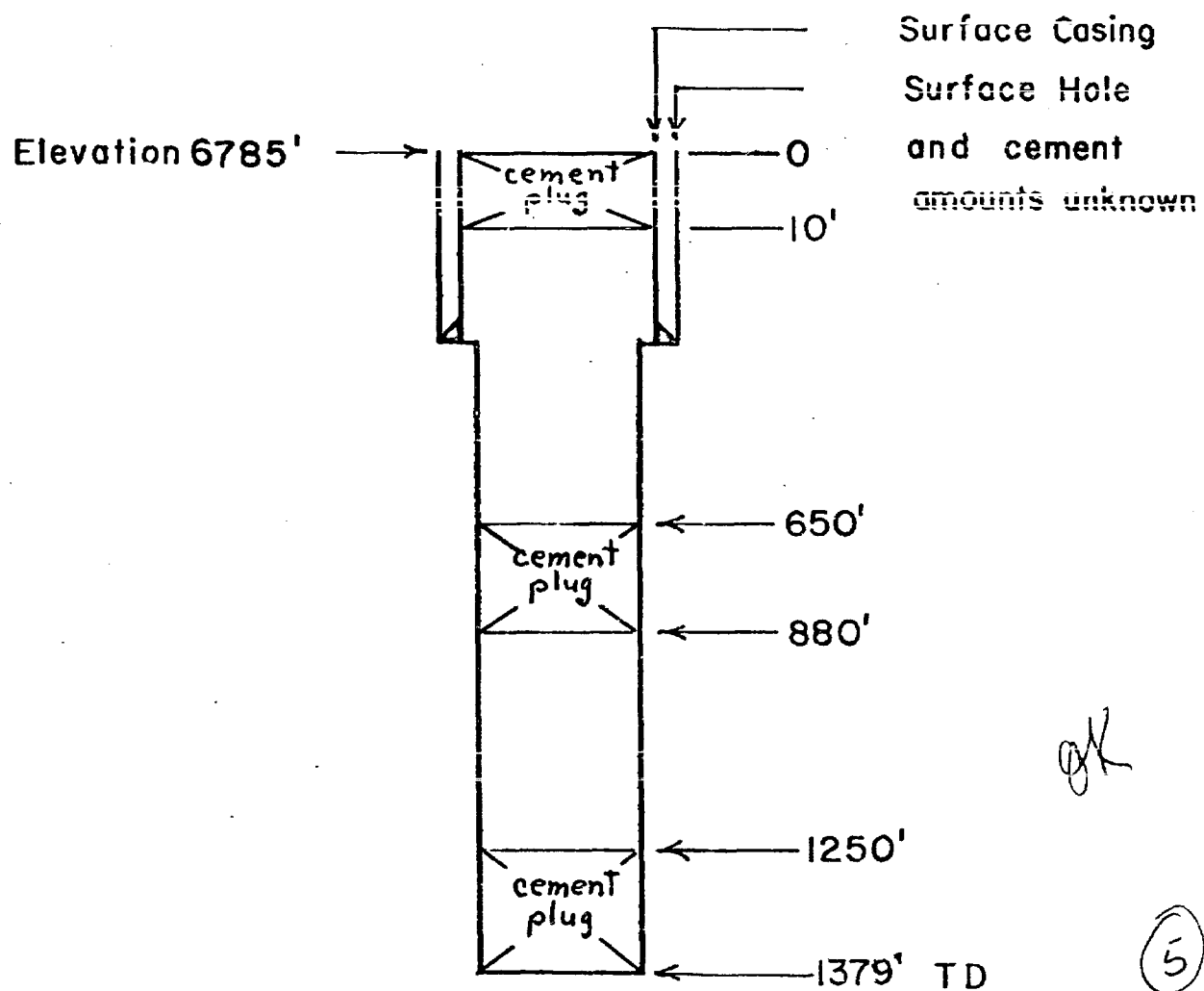
SAN LUIS FIELD  
ABANDONED WELL—PLUGGING DIAGRAM

ROLLINS DODGEN #1  
2475' FNL 1155' FWL  
Section 21, T18N, R3W  
Sandoval County, New Mexico



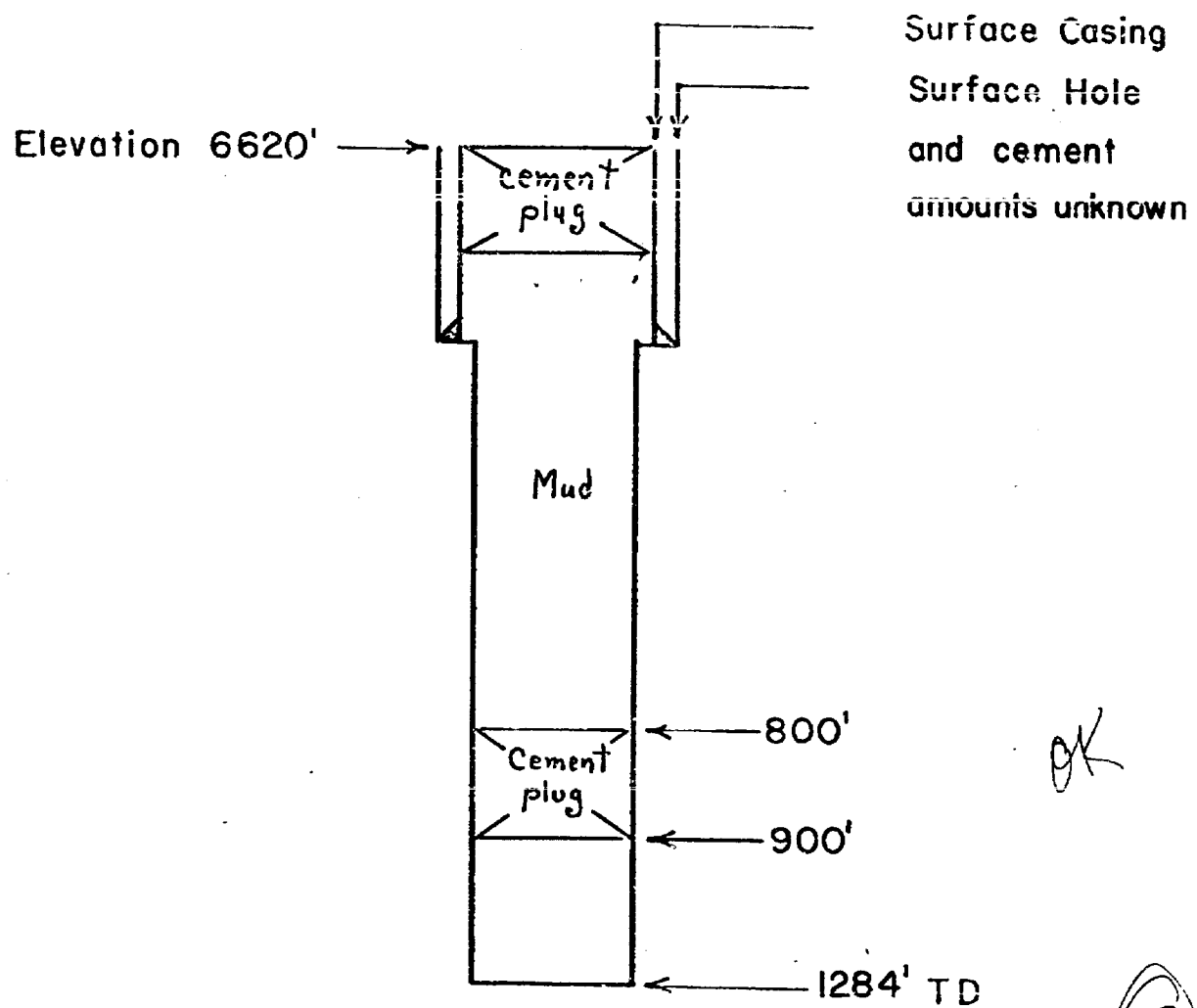
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HARVEY GARTNER WARD #5  
2475' FNL 2310' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



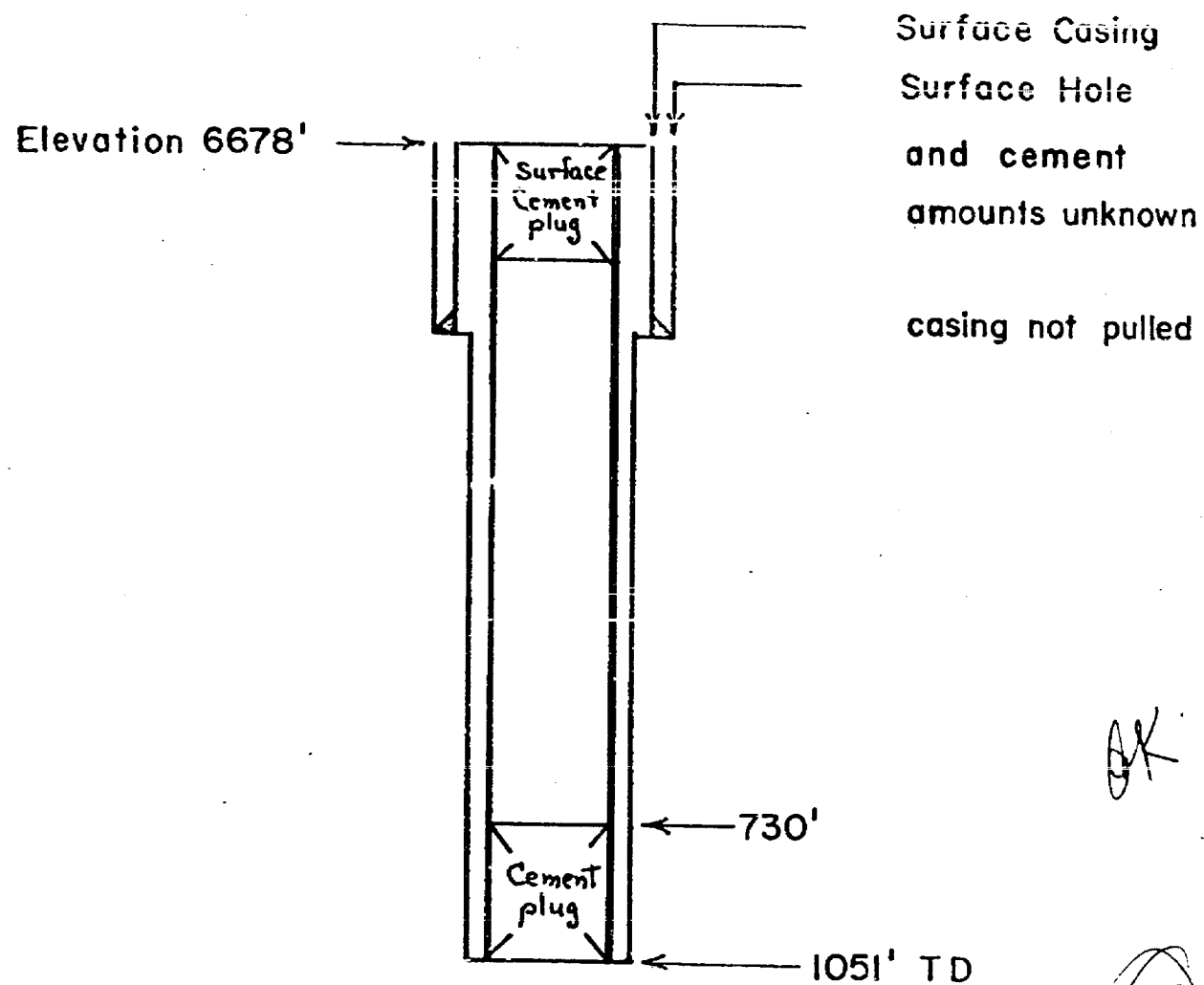
SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

UMBERGER - GARTNER #1  
1915' FNL 429' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



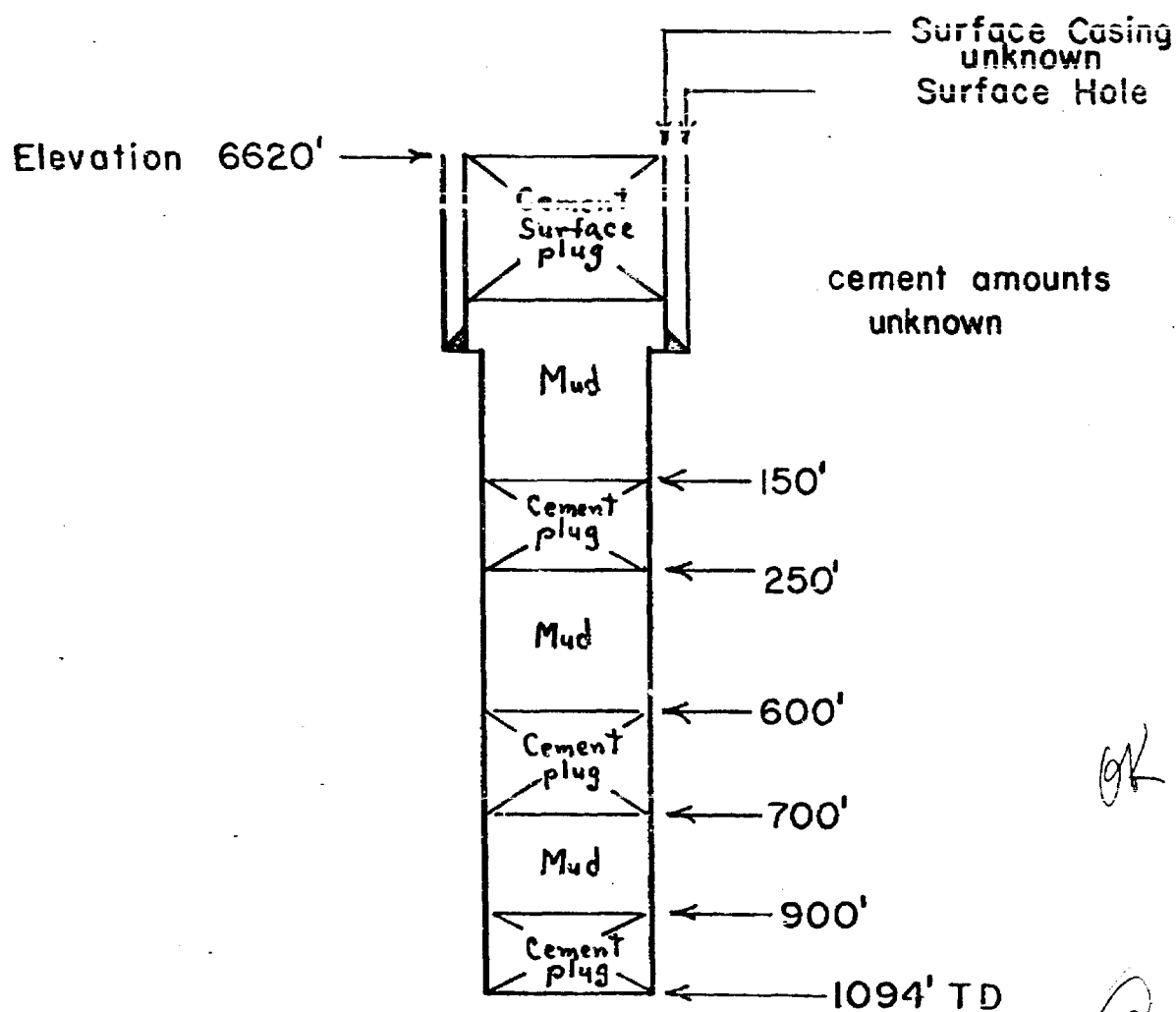
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

UMBERGER GARTNER # 2  
1980' FNL 509' FE L  
Section 21 , Township 18 N , Range 3W  
Sandoval County, New Mexico



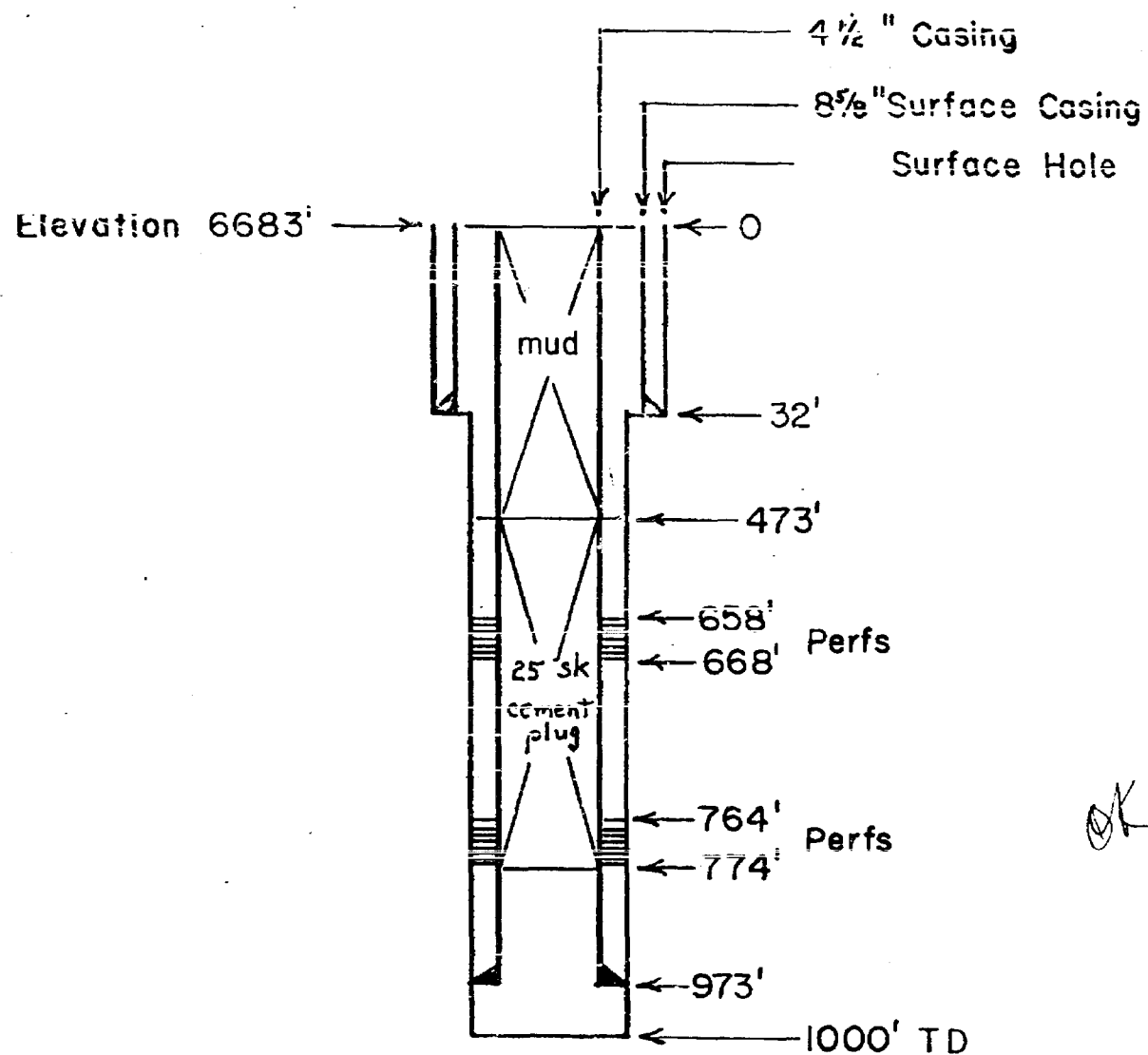
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HARVEY GARTNER #3  
2310' FNL 990' FEL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



# SAN LUIS FIELD ABANDONED WELL — PLUGGING DIAGRAM

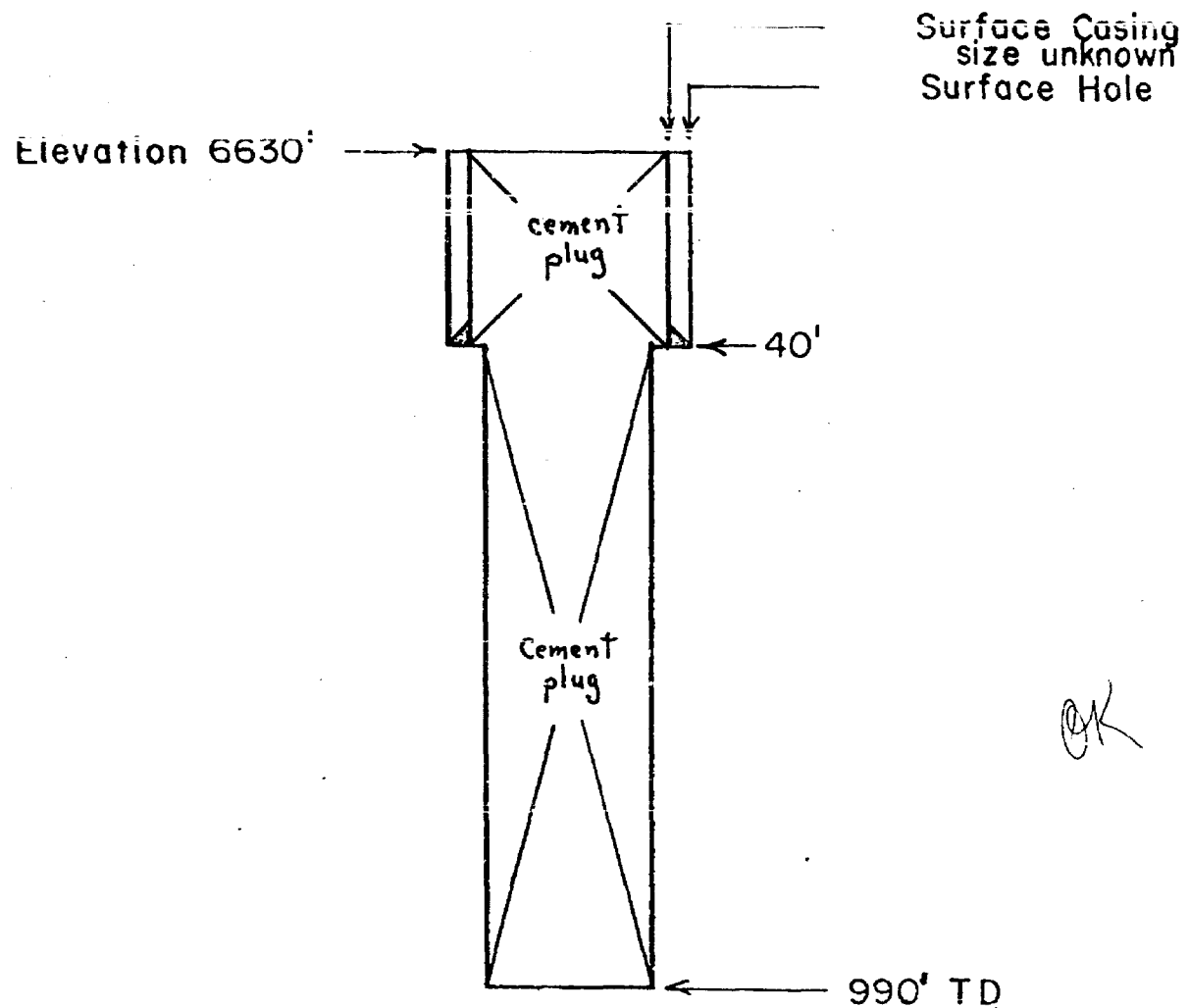
RISING FEDERAL # 3  
1485' FSL 1155' FWL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico





SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

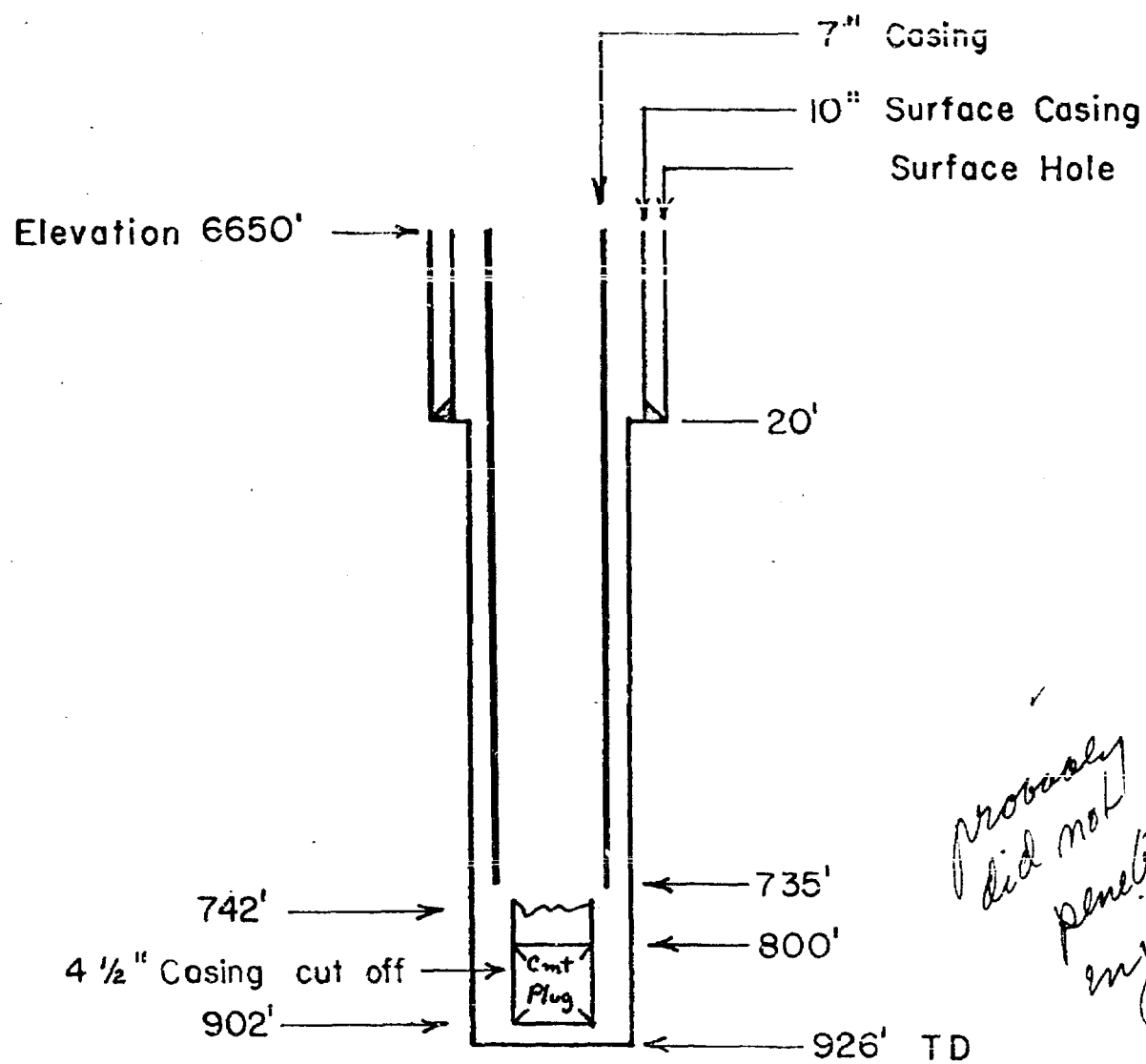
WOOSLEY FEDERAL #1  
330' FSL 990' FWL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

MYERS — KING #1

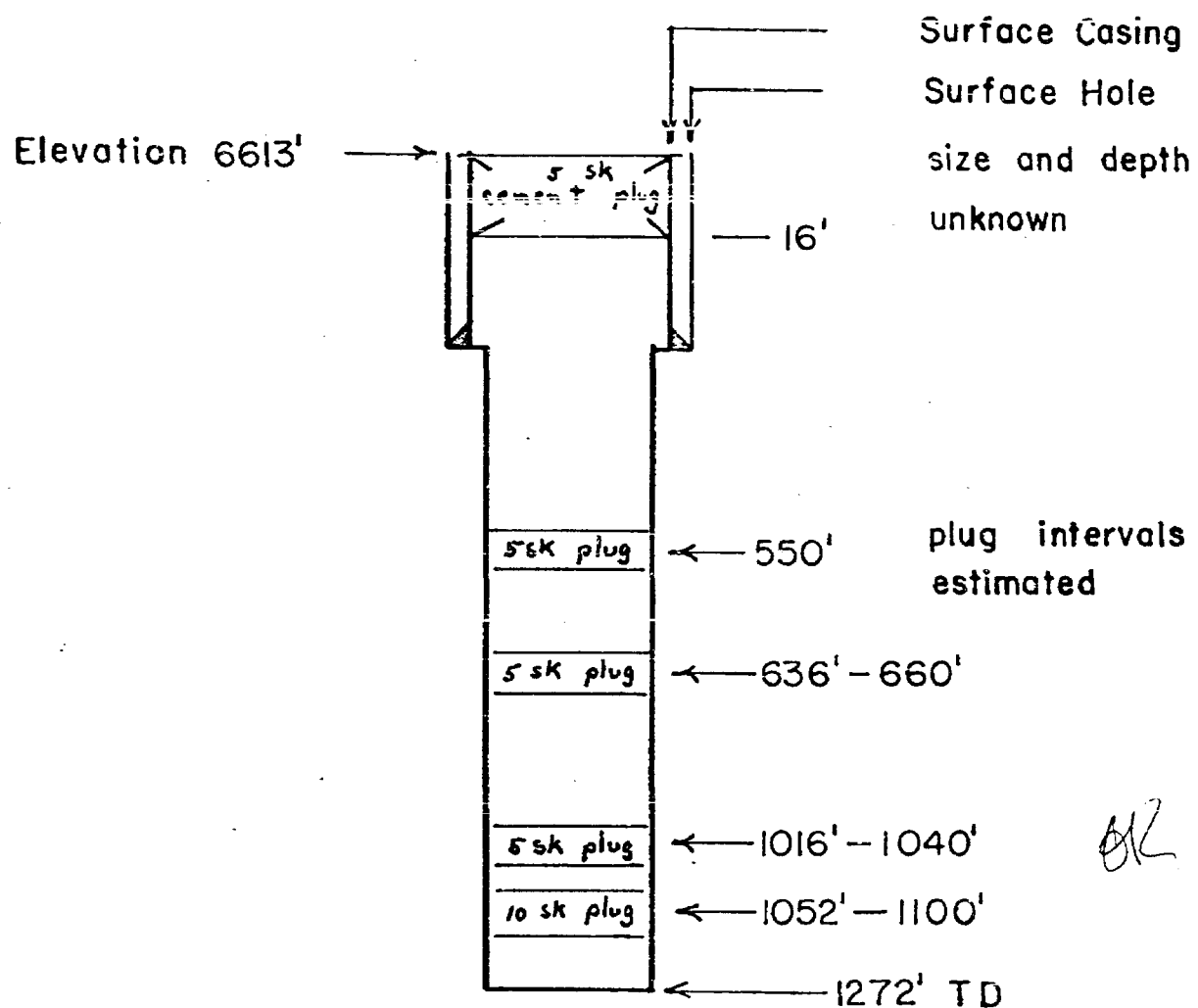
1155' FSL      2475' FWL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



*Probably  
did not  
penetrate  
injection  
zone*

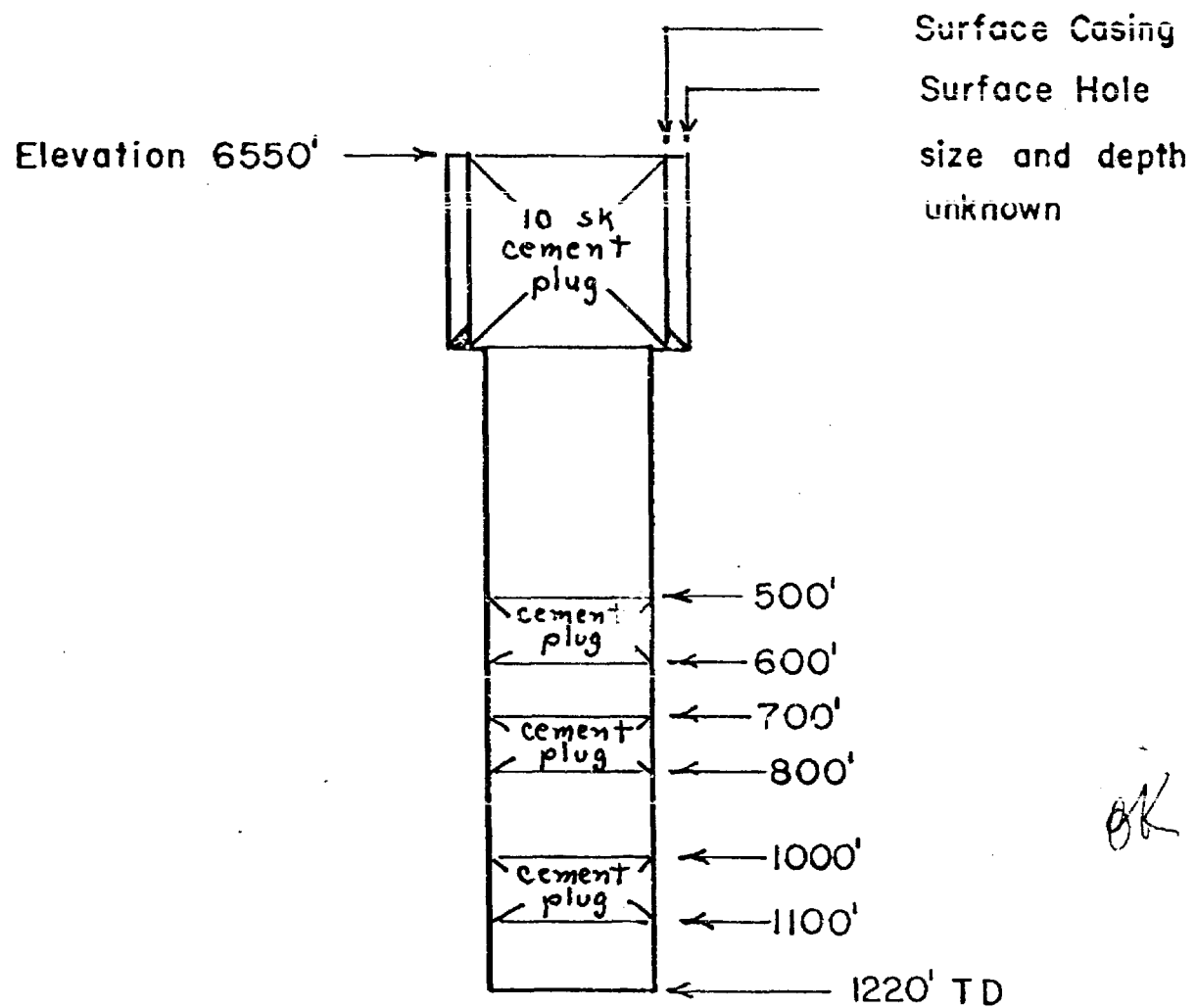
# SAN LUIS FIELD ABANDONED WELL - PLUGGING DIAGRAM

HOLMES - HOLMES A #1  
660' FNL 547' FE L  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HOLMES — ROREX FEDERAL #1  
660' FNL 1980' FE L  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



OK

21

SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

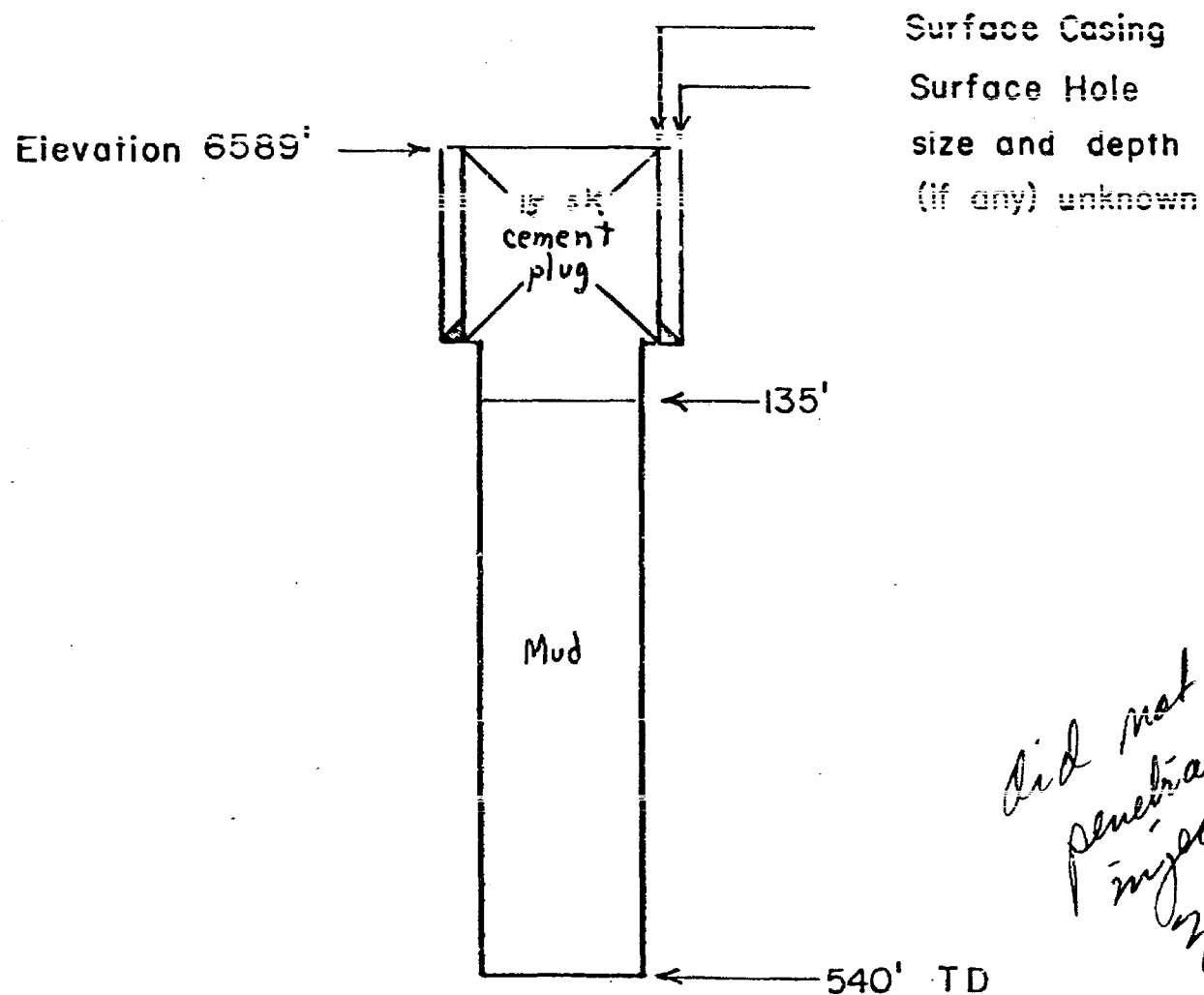
RISING FEDERAL # 1

165' FNL

2145' FWL

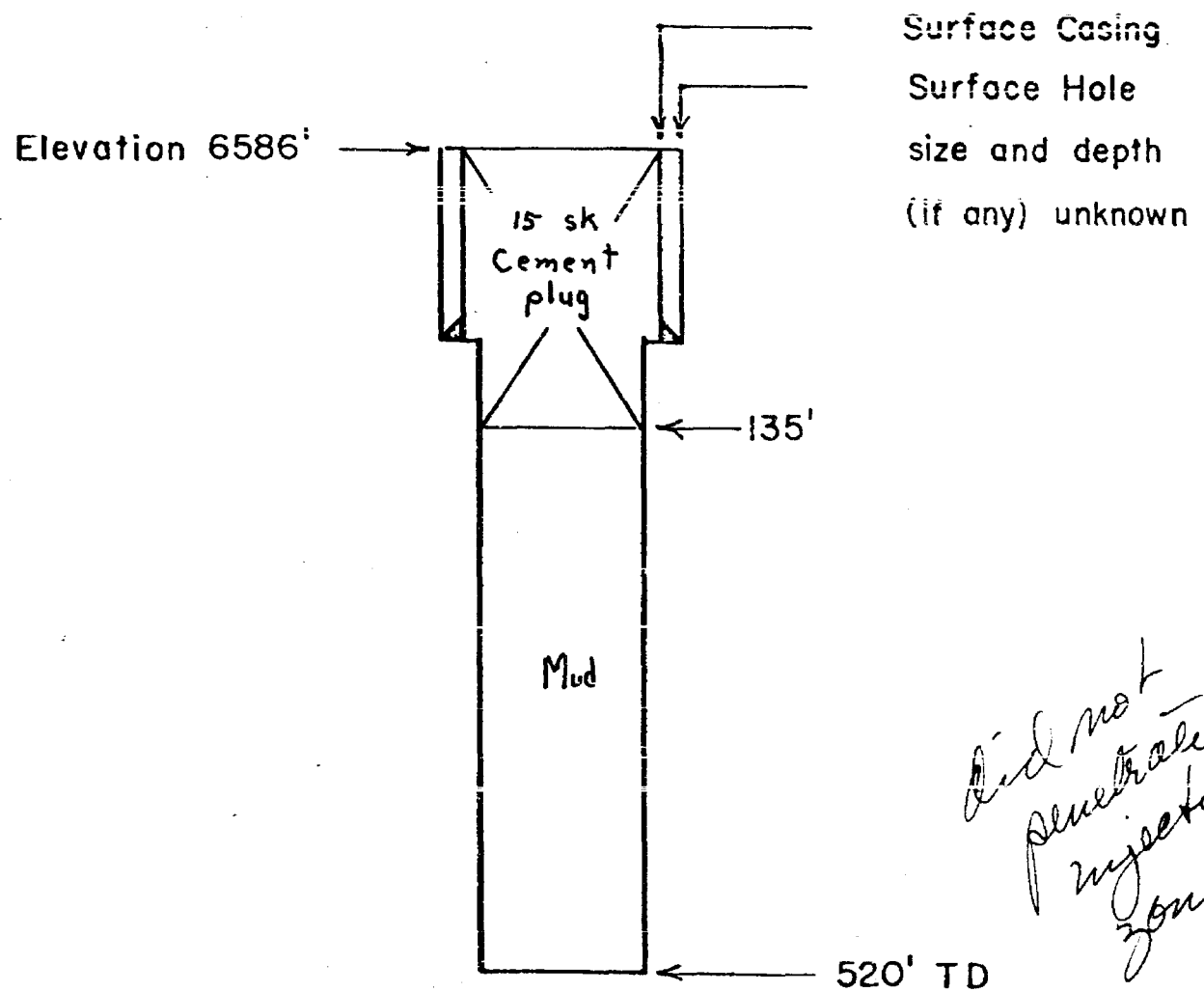
Section 28, Township 18 N, Range 3W

Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

RISING - FEDERAL #2  
495' FNL 1815' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico

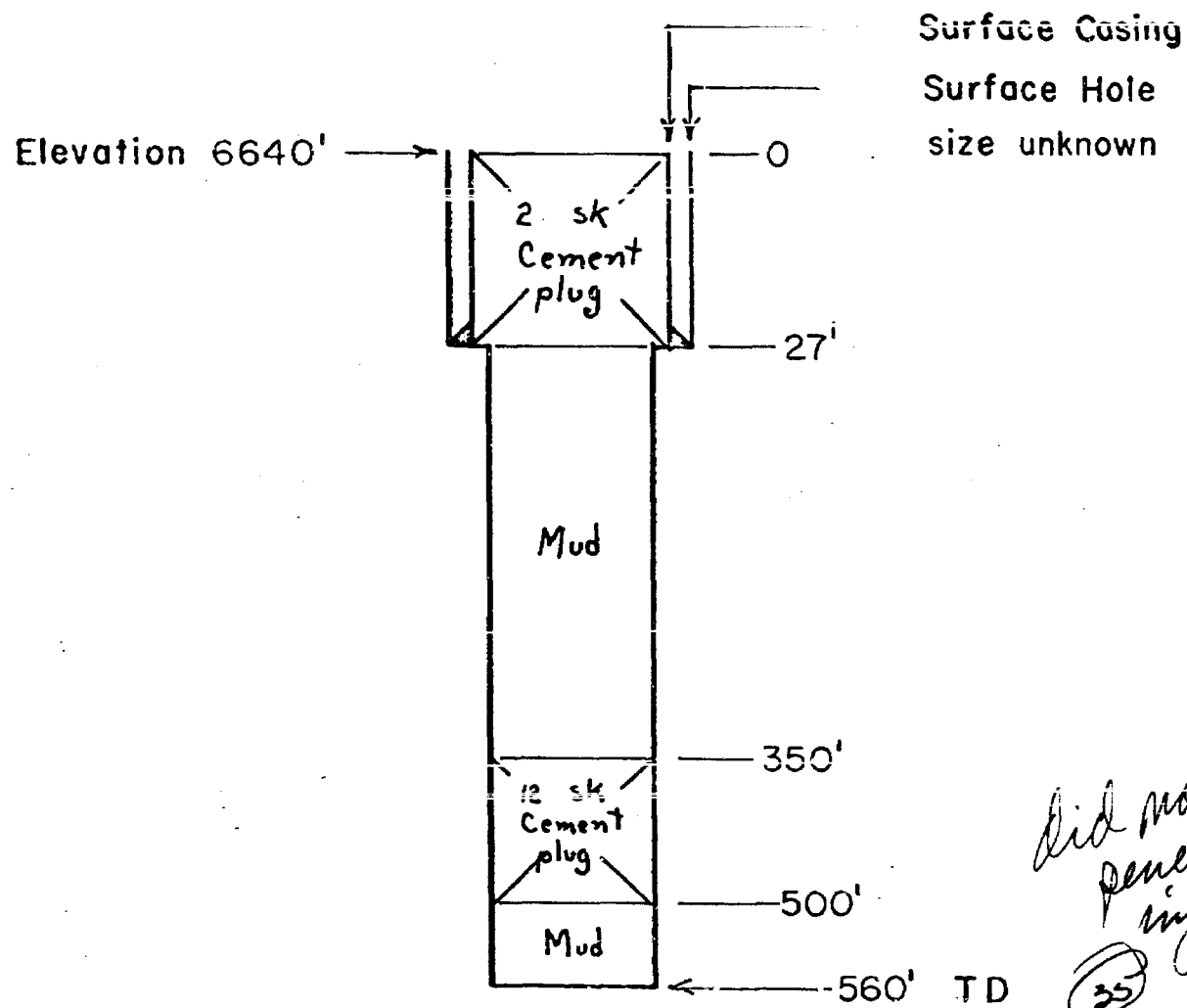


*Did not  
penetrate  
migration  
zone*

33

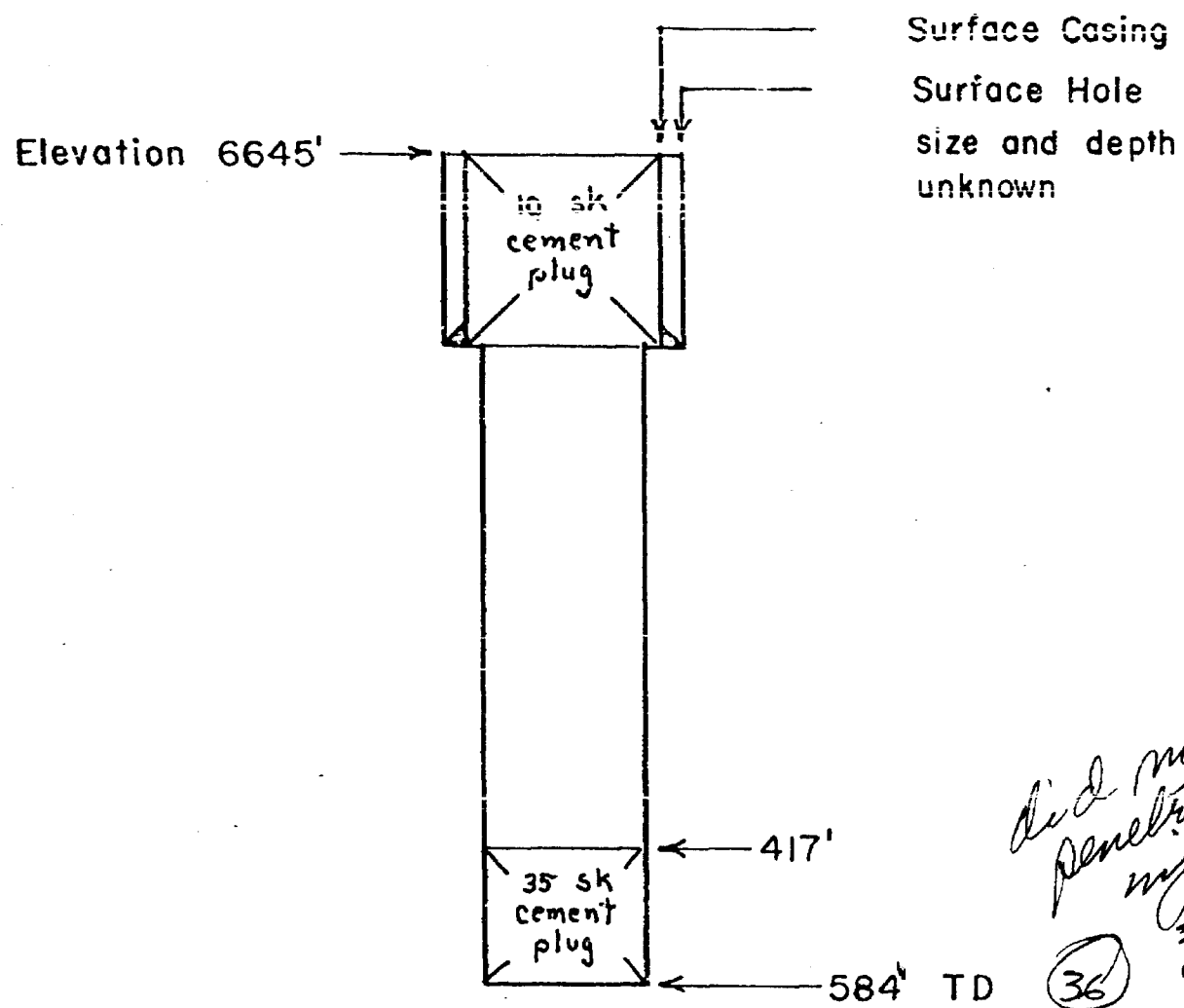
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

MORROW - ROLLINS - DODGEN #2  
165' FNL 1140' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

ROLLINS - DODGEN #3  
495' FNL 1155' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico

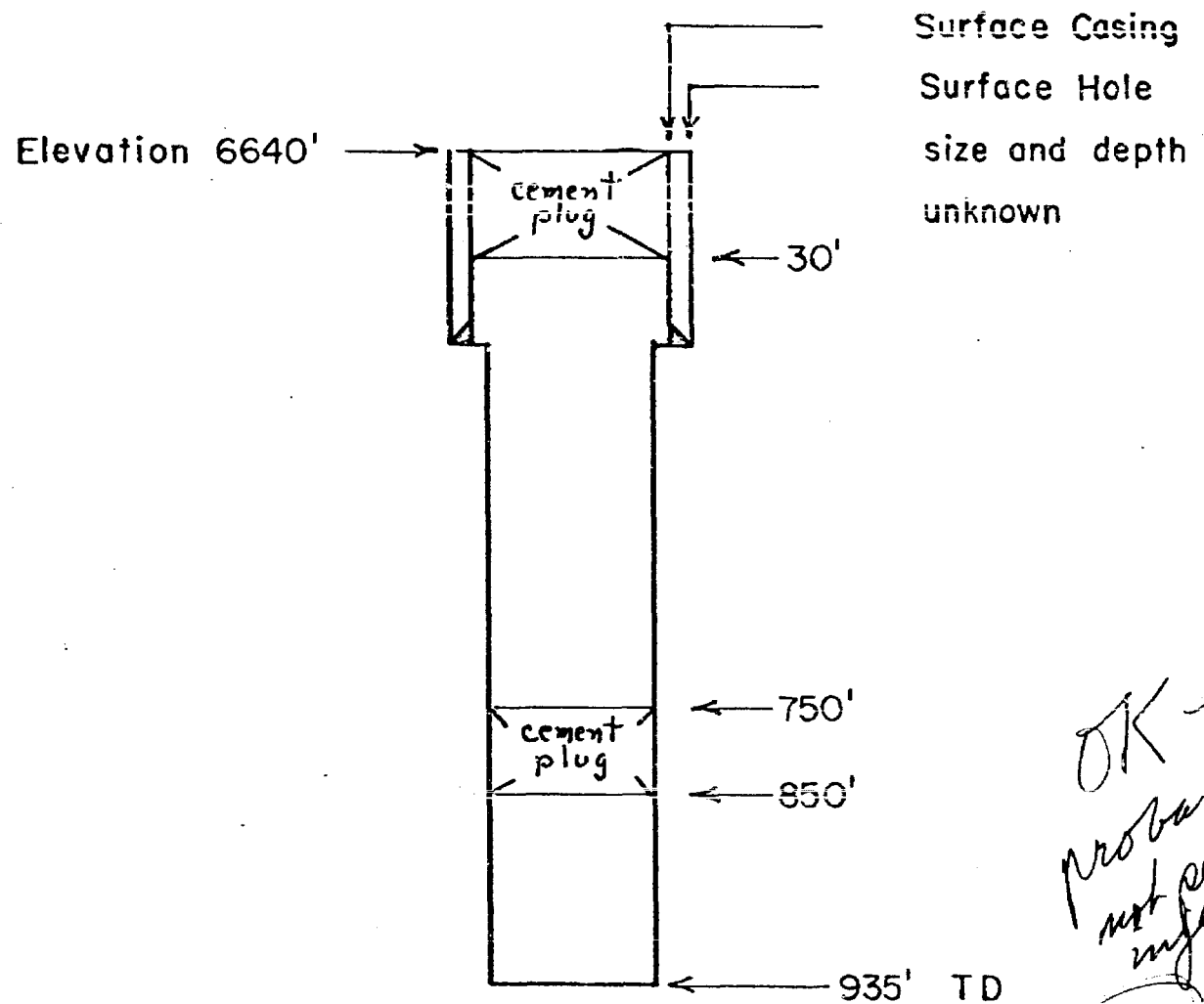




SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

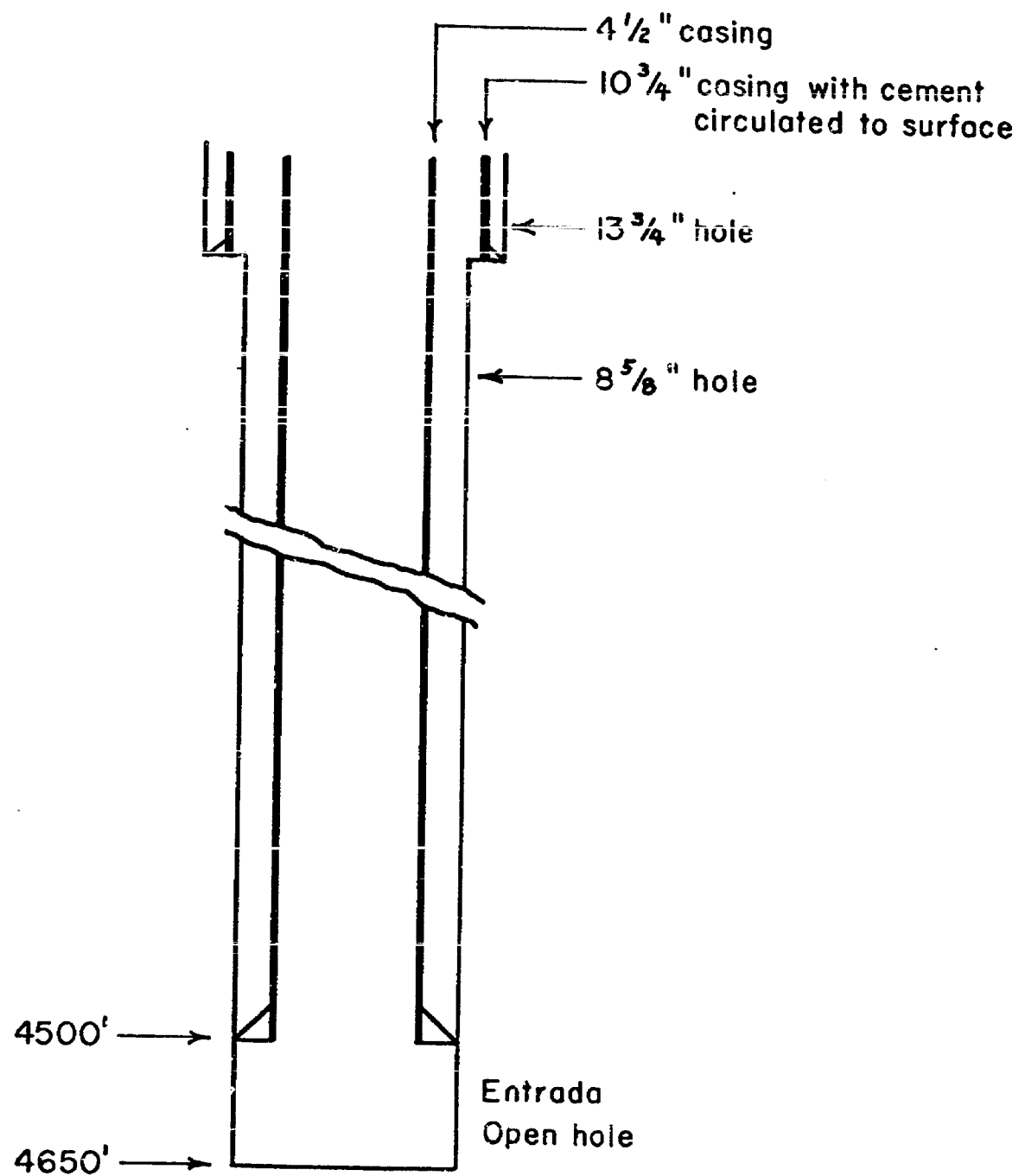
EL PAMCO — MYRA #3

660' FNL 330' FE L  
Section 29, Township 18 N, Range 3W  
Sandoval County, New Mexico



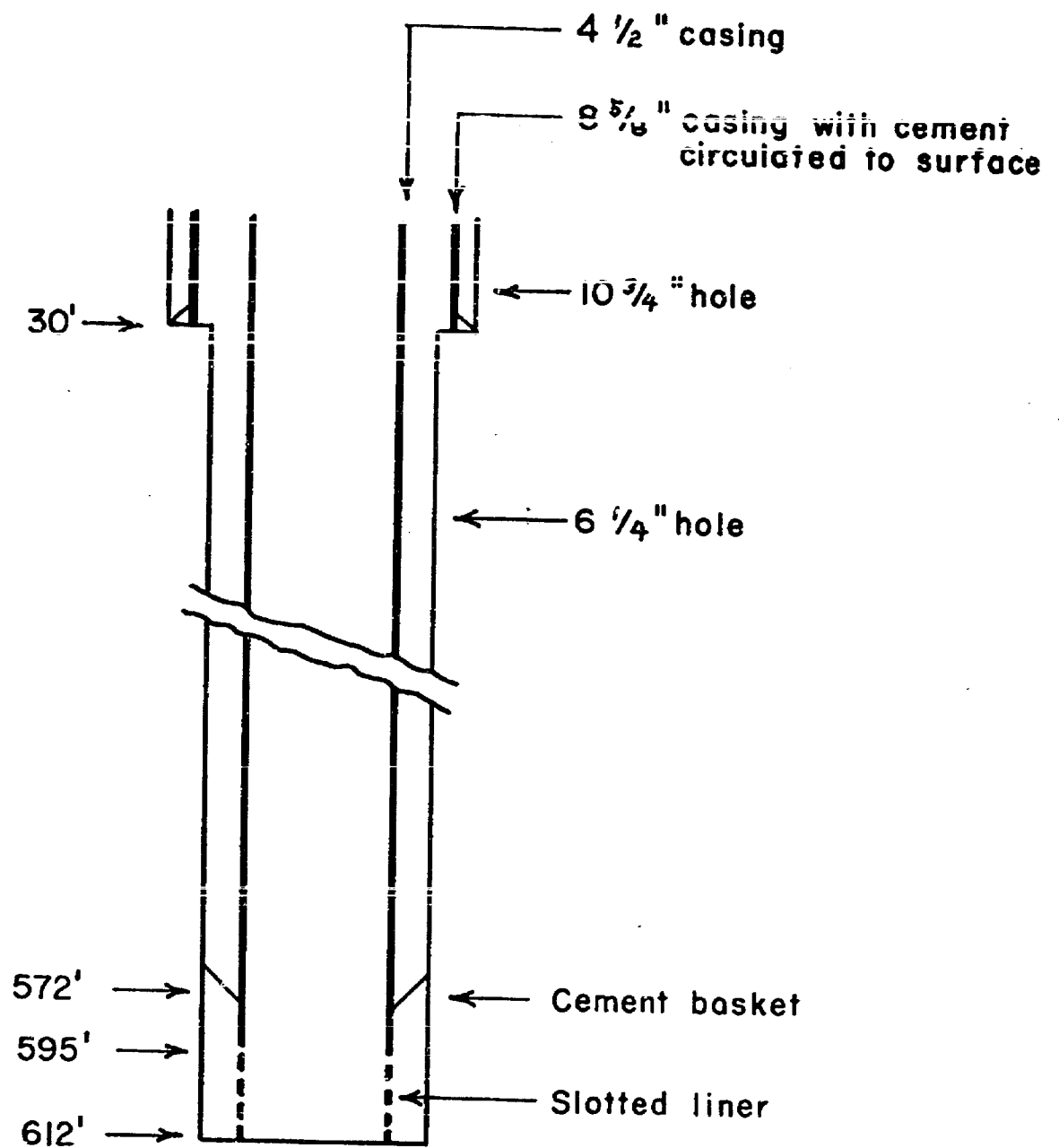
OK —  
probably did  
not penetrate  
injection  
zone  
any  
how  
(37)

TORREON OIL COMPANY  
(PETROLEUM DEV. COMPANY)  
San Luis Federal Well No. 1  
1980 FSL 2010 FEL  
Section 21, T18N, R3W  
Sandoval County, New Mexico  
(Water Source Well)



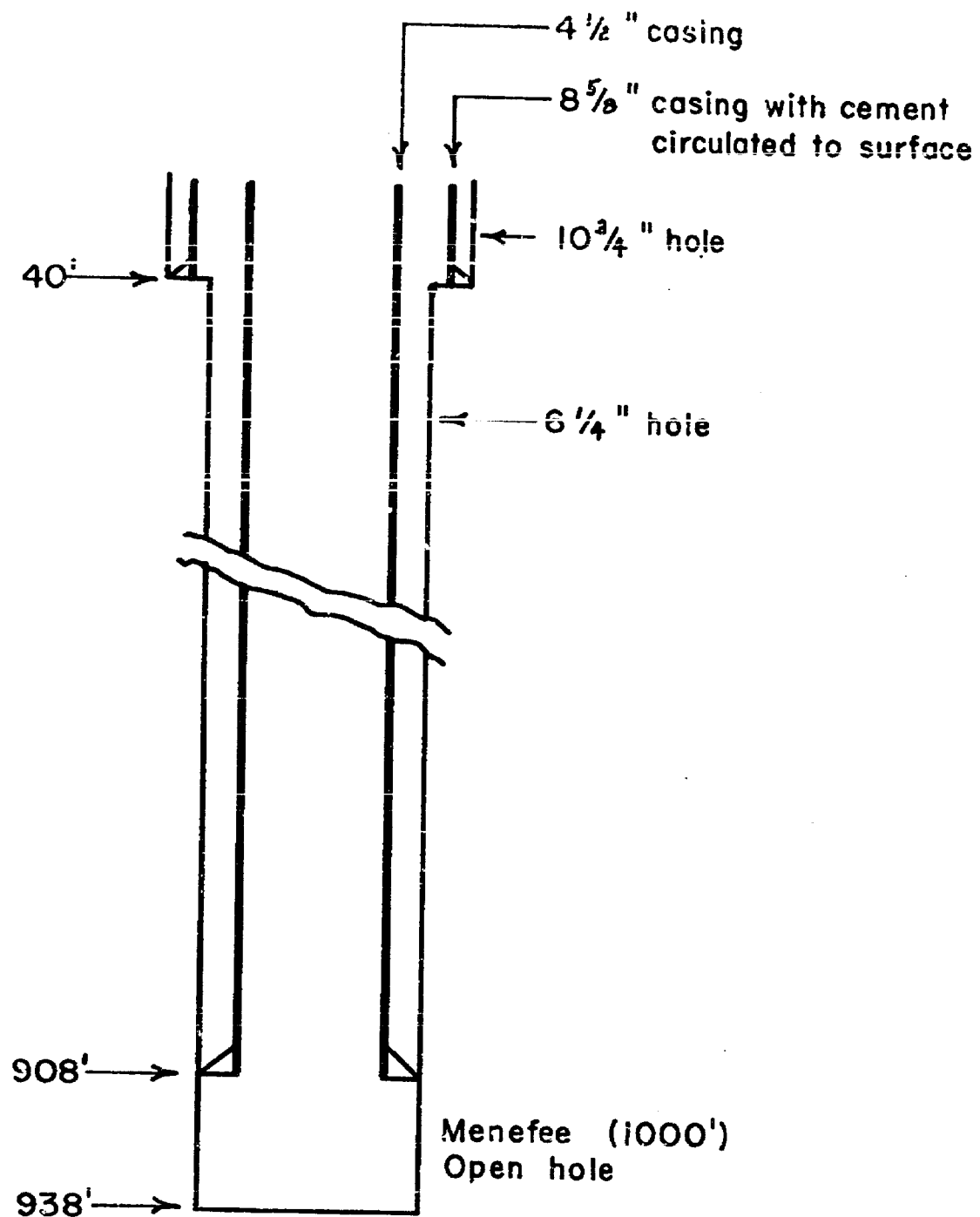
# TORREON OIL COMPANY

San Luis Federal Well No. 3  
2164 FSL 1600 FEL  
Section 21, T18 N, R3 W  
Sandoval County, New Mexico



# TORREON OIL COMPANY

(HARVEY — Harvey A # 3)  
San Luis Federal Well No. 12  
1862 FSL 2171 FEL  
Section 21, T18 N, R3 W  
Sandoval County, New Mexico



TORREON OIL COMPANY

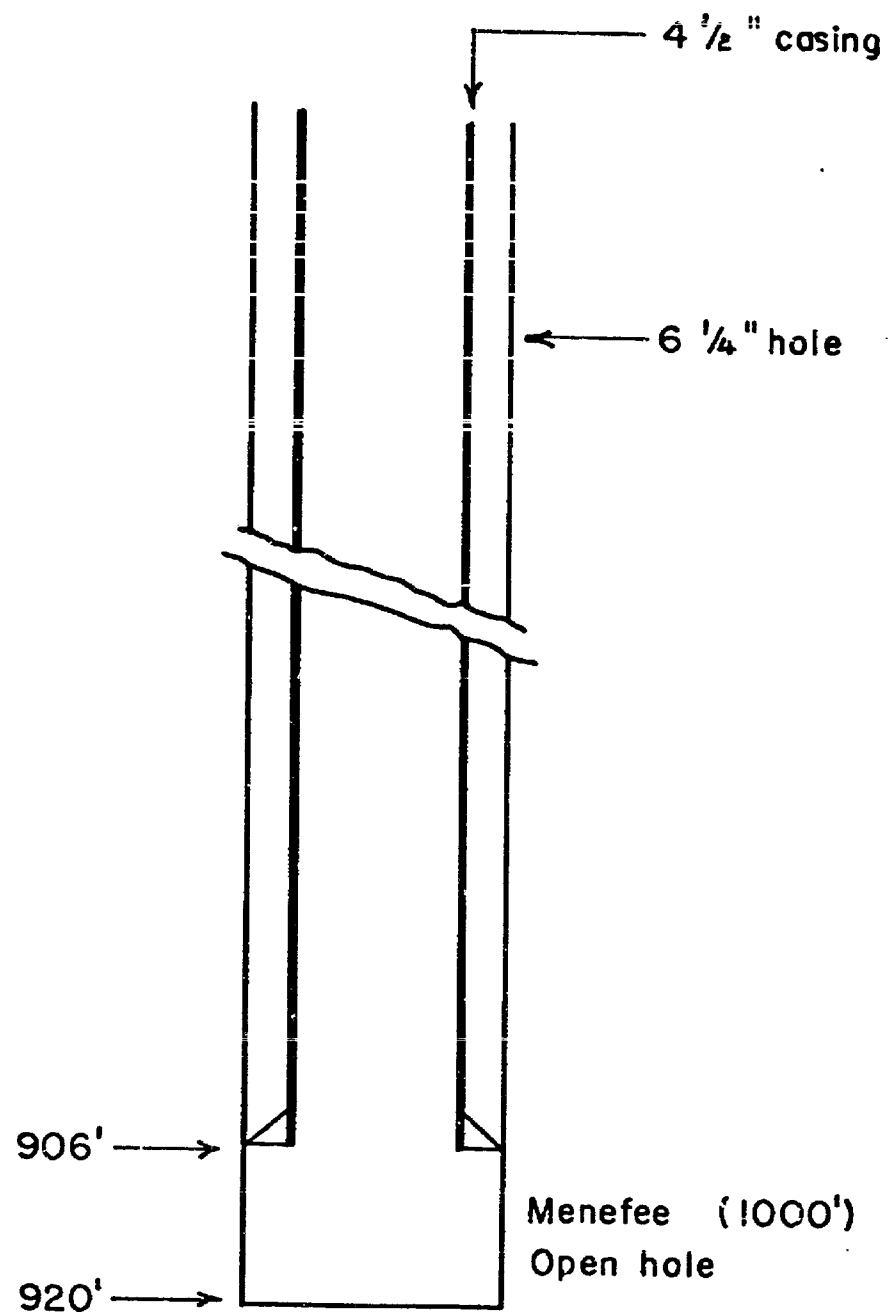
(HARVEY - Harvey A # 4)

San Luis Federal Well No. 13

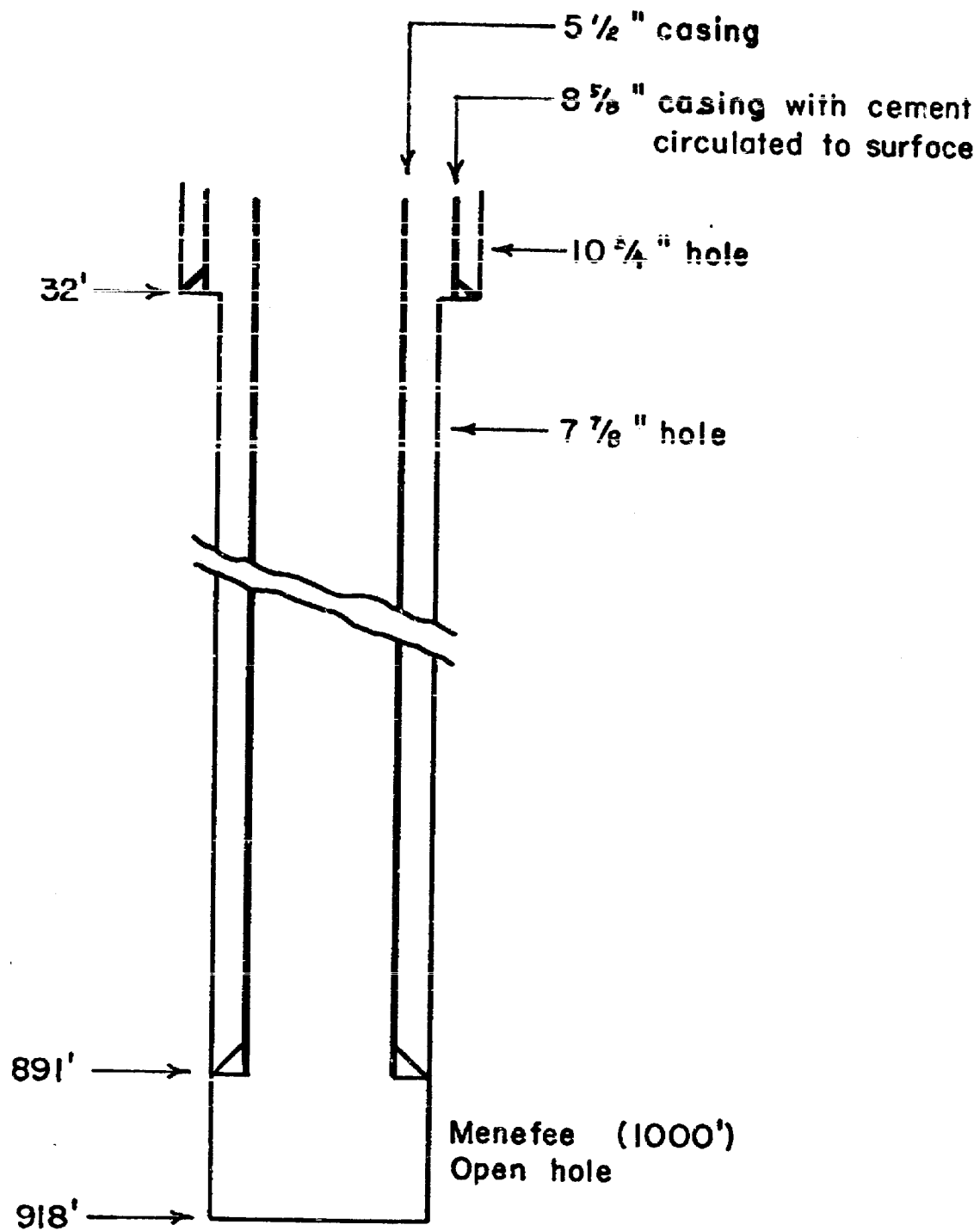
1691 FSL 1701 FEL

Section 21, T18N, R3W

Sandoval County, New Mexico



TORREON OIL COMPANY  
(HARVEY — Harvey A # 1)  
San Luis Federal Well No. 11  
1424 FSL 2294 FEL  
Section 21, T18N, R3W  
Sandoval County, New Mexico



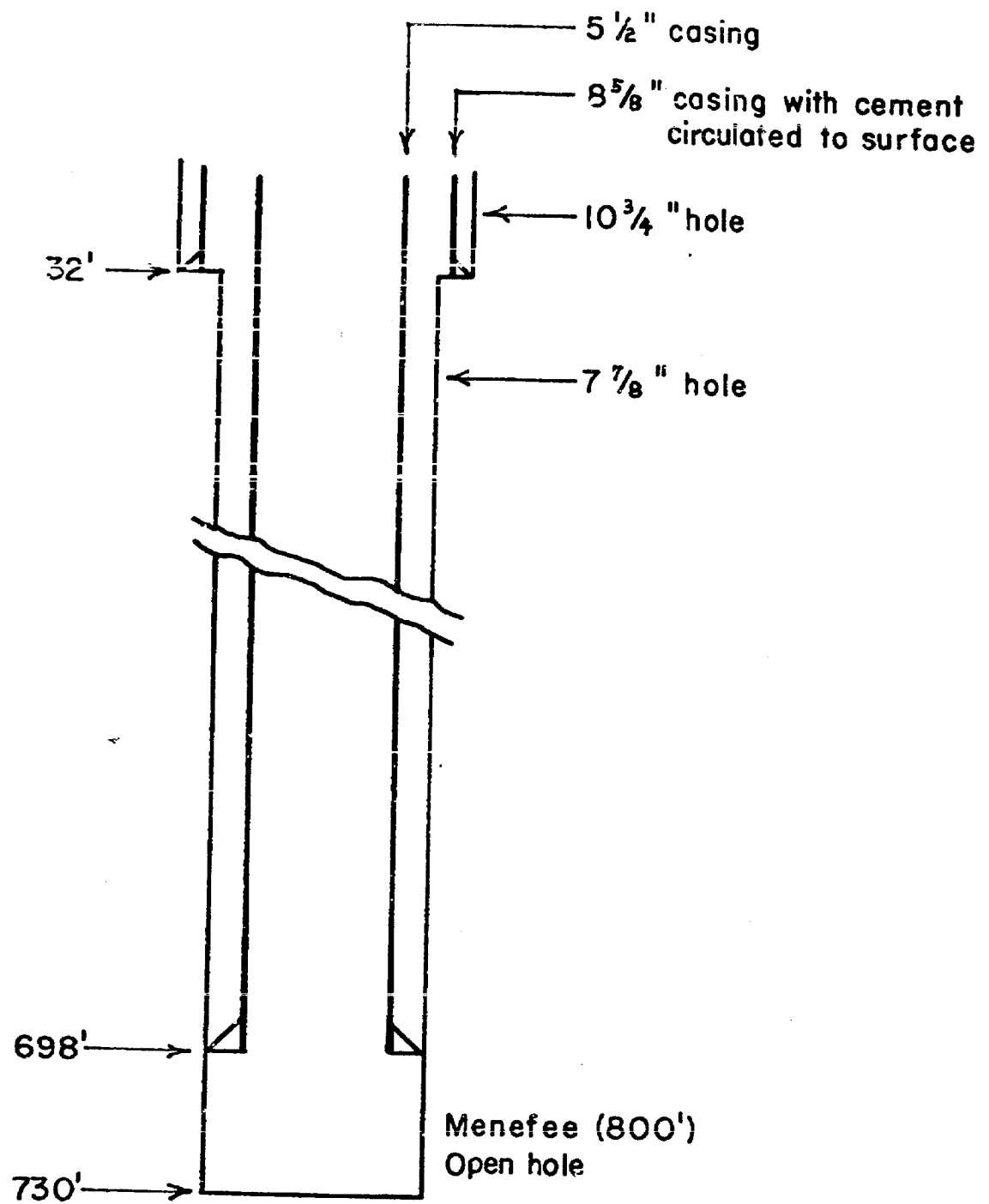
# TORREON OIL COMPANY

(HARVEY - Harvey A # IX )

San Luis Federal Well No. 14

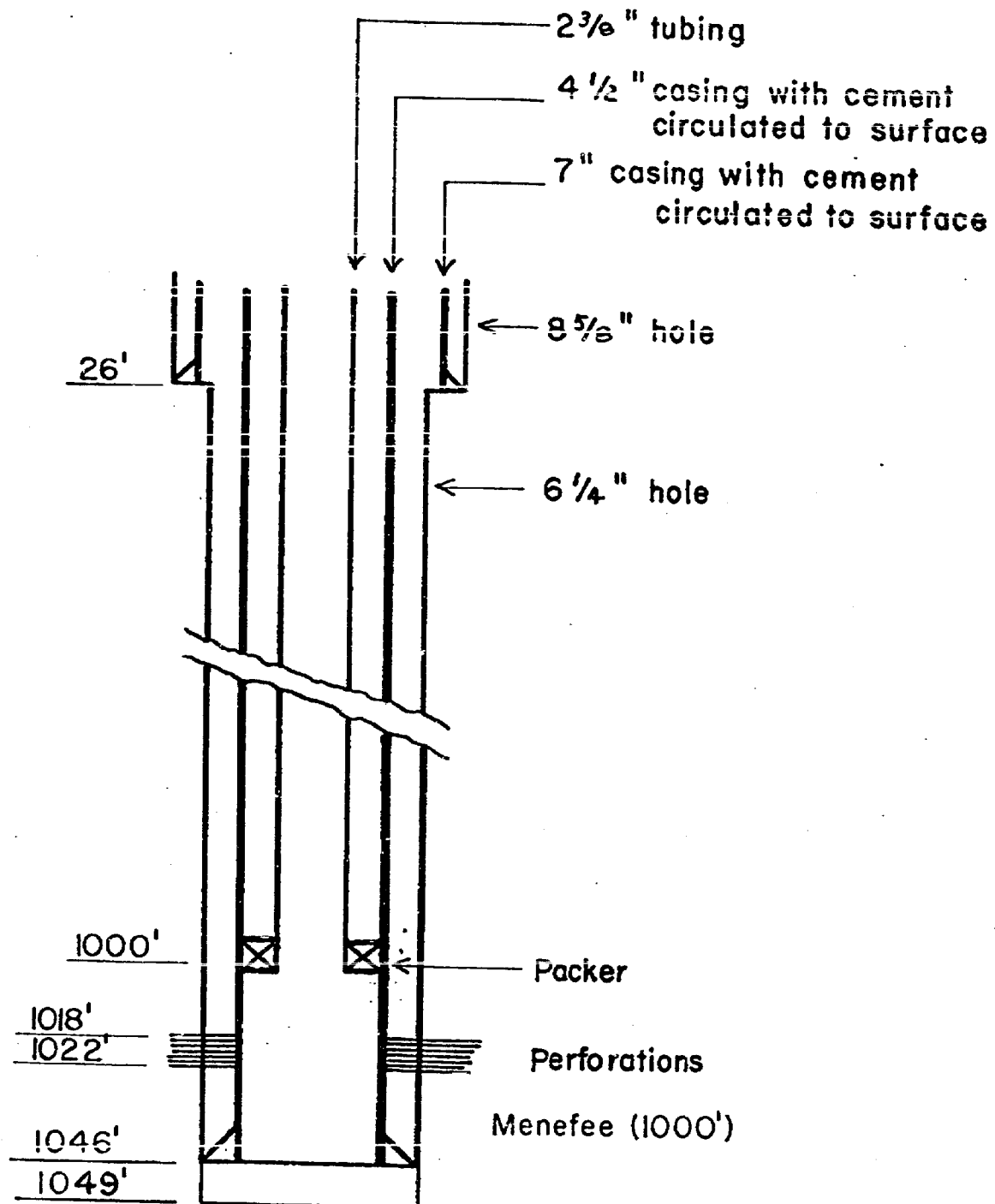
1670 FSL 2309 FEL  
Section 21, T 18 N, R 3 W

Sandoval County, New Mexico



# TORREON OIL COMPANY

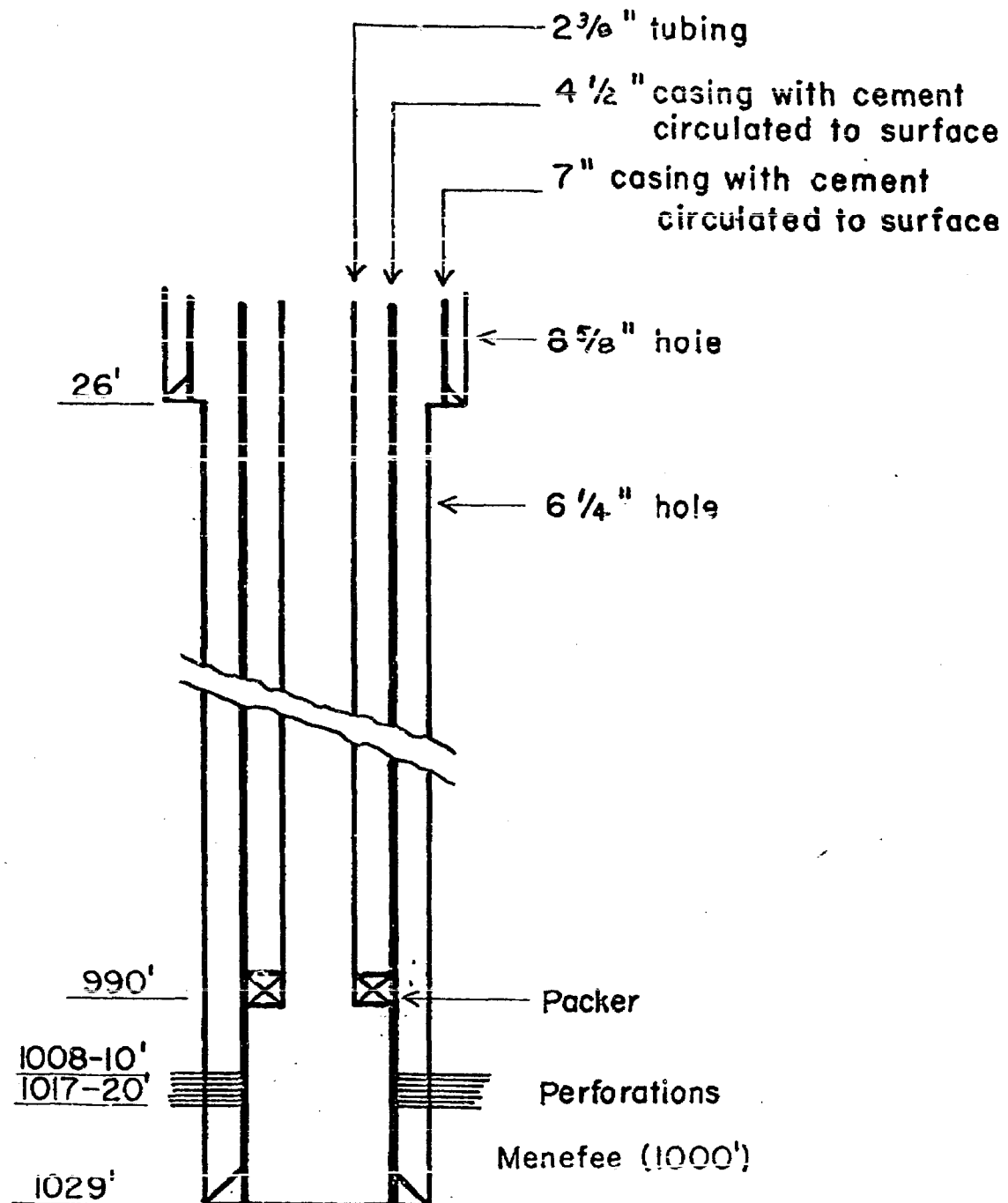
San Luis Federal Well No. 4 (Alt.)  
2490' FS L      2310' FE L  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6776' GL





# TORREON OIL COMPANY

San Luis Federal Well No. 5  
2490' FSL 1470' FEL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6736 GL



# TORREON OIL COMPANY

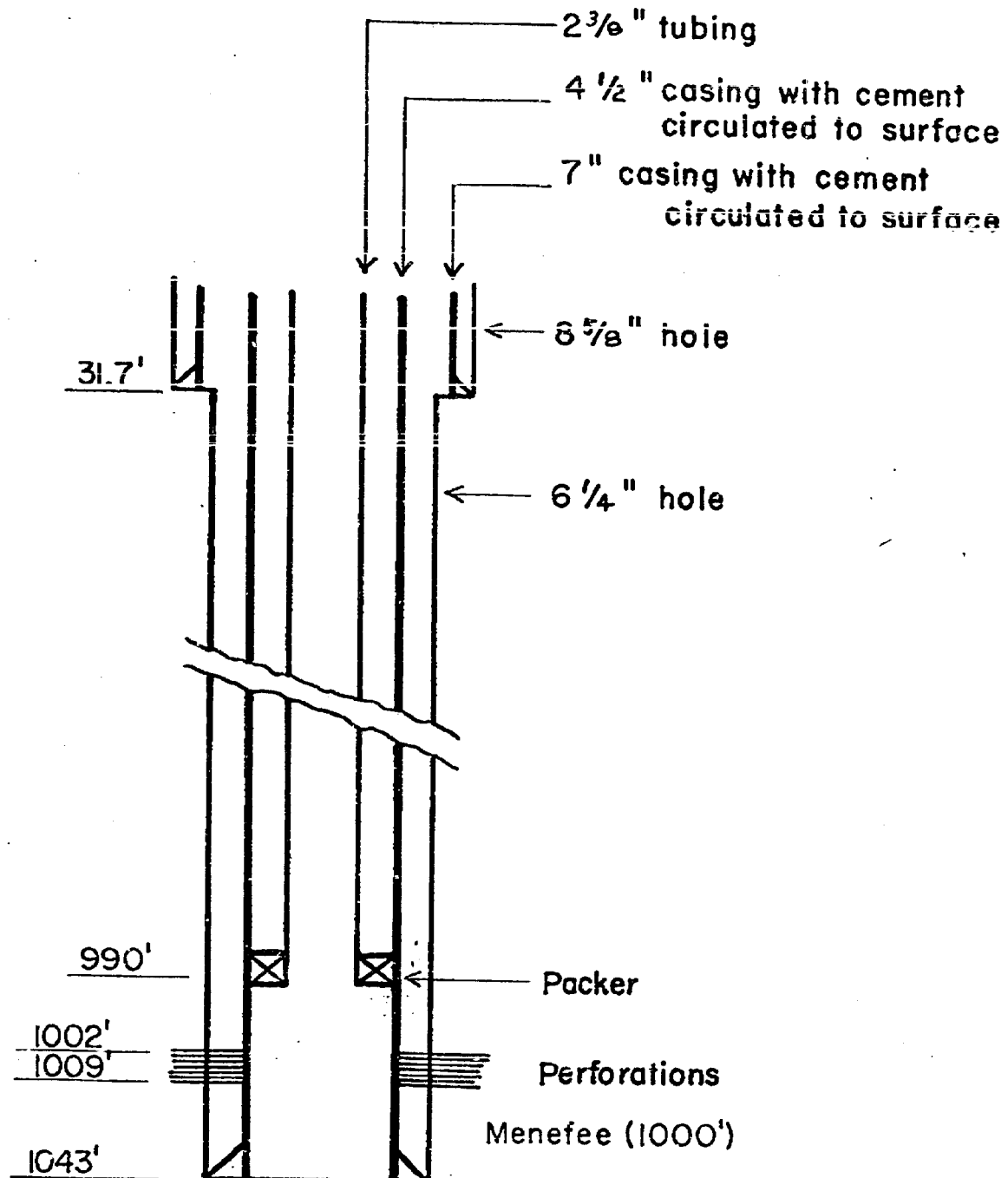
San Luis Federal Well No. 1

1650' FSL 1980' FWL

Section 21, T 18 N, R 3 W

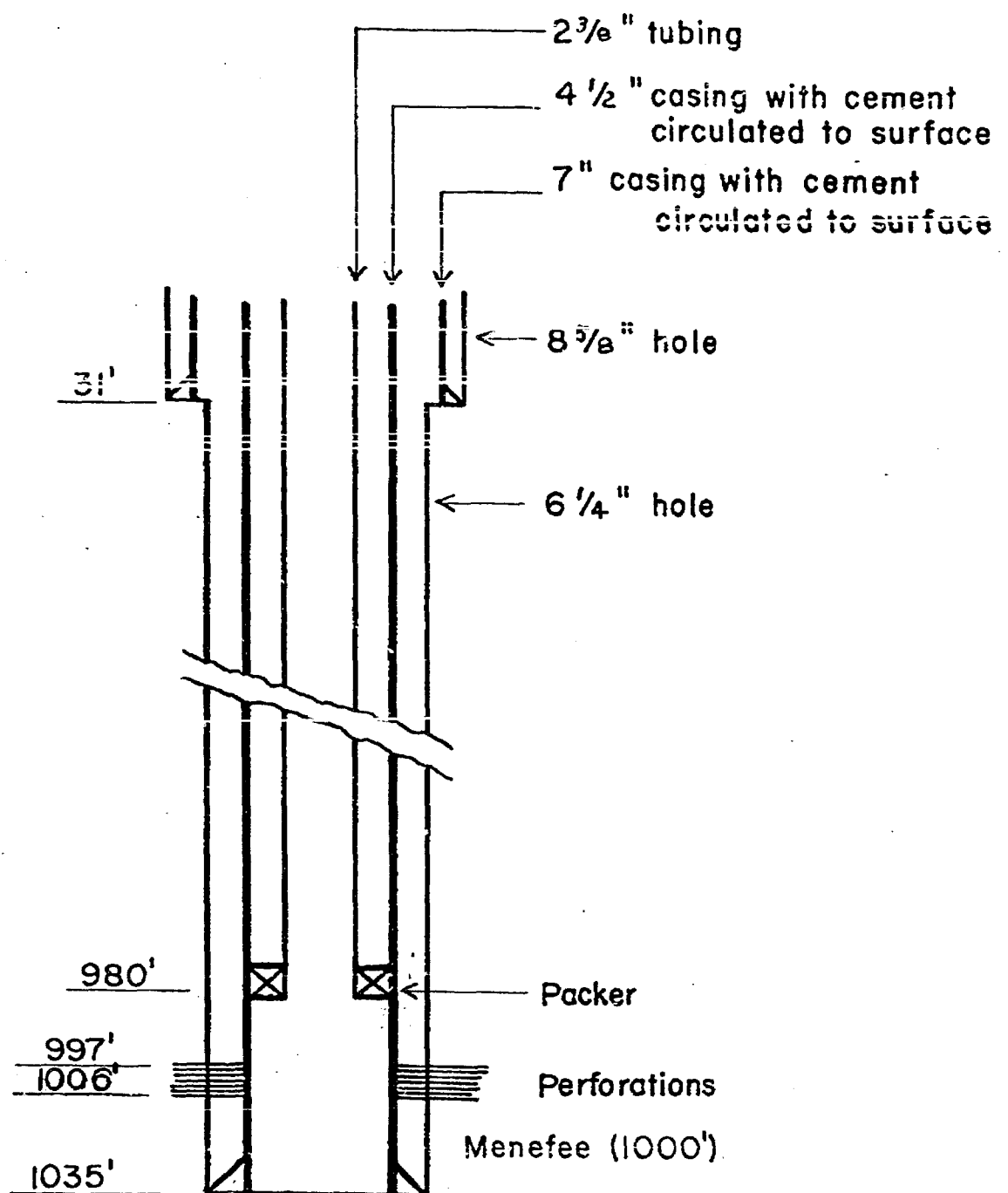
Sandoval County, New Mexico

Elevation 6750' GL



# TORREON OIL COMPANY

San Luis Federal Well No. 2  
2278' FSL      2296' FWL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6749' GL



# TORREON OIL COMPANY

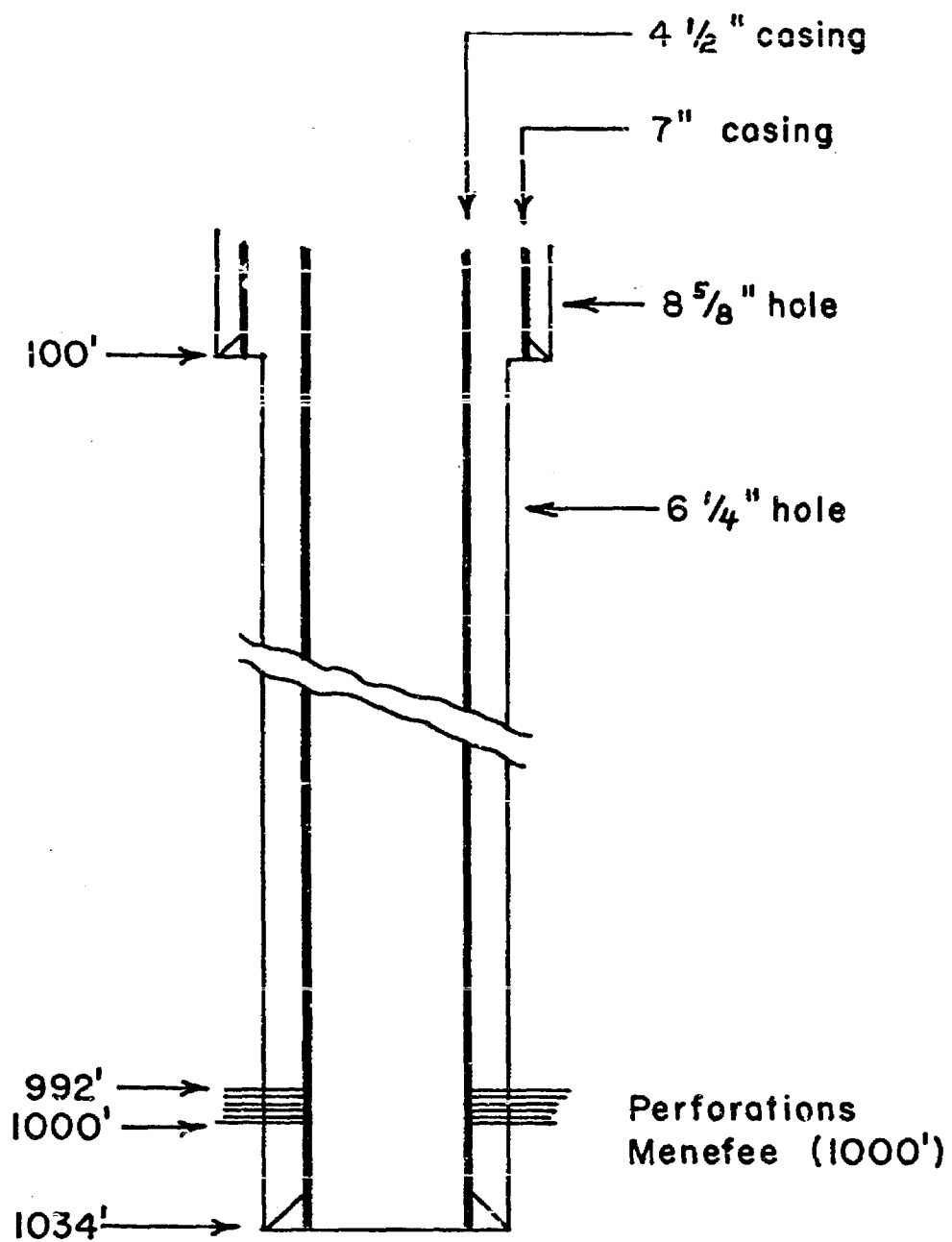
(HARVEY — Federal #1)

San Luis Federal Well No. 15

1520 FSL 2340 FWL

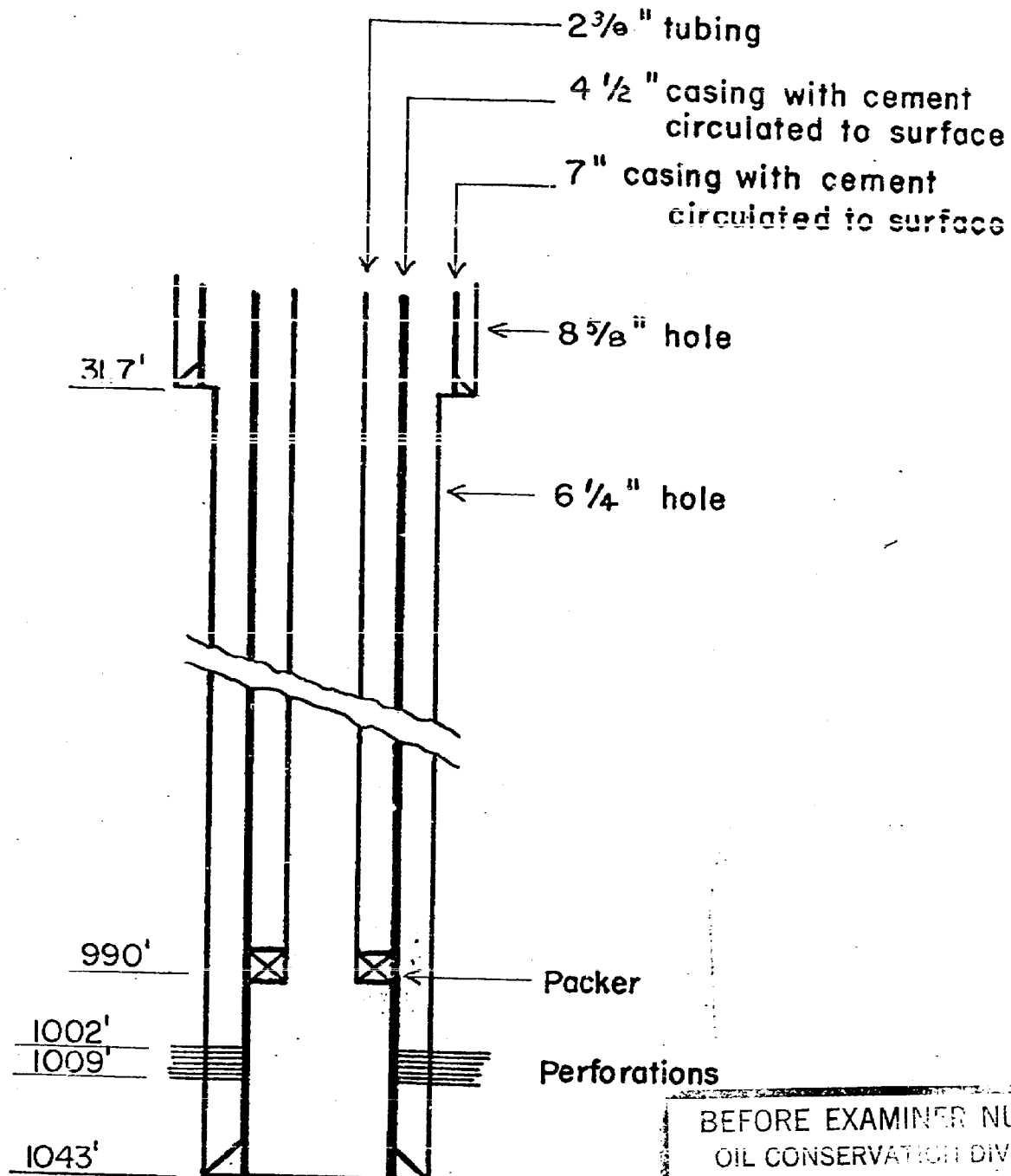
Section 21, T 18 N, R 3 W

Sandoval County, New Mexico



# TORREON OIL COMPANY

San Luis Federal Well No. 1  
1650' FSL 1980' FWL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6750' GL

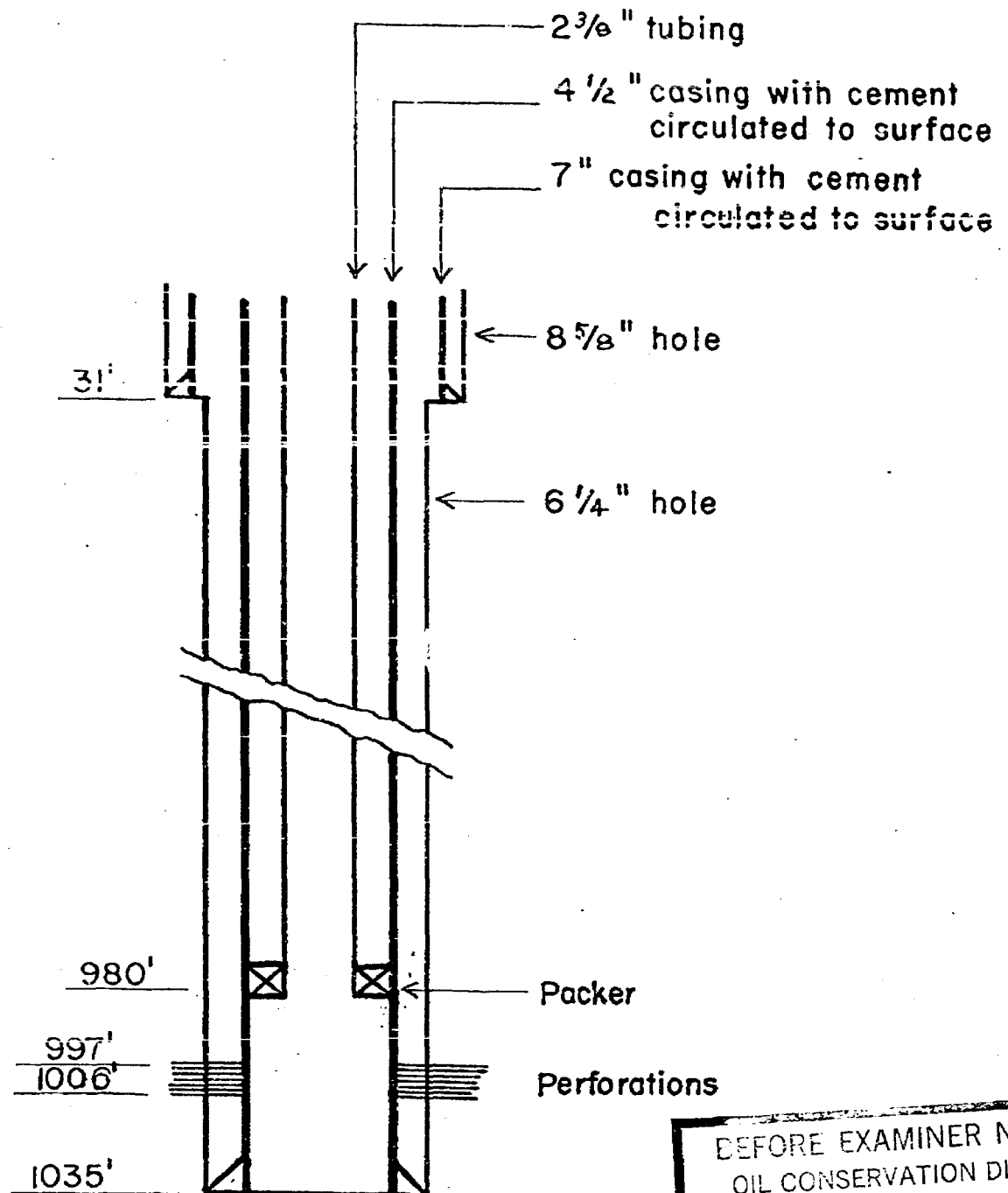


BEFORE EXAMINER NUTTER  
OIL CONSERVATION DIVISION

TORREON EXHIBIT NO. 6  
CASE NO. 6795

# TORREON OIL COMPANY

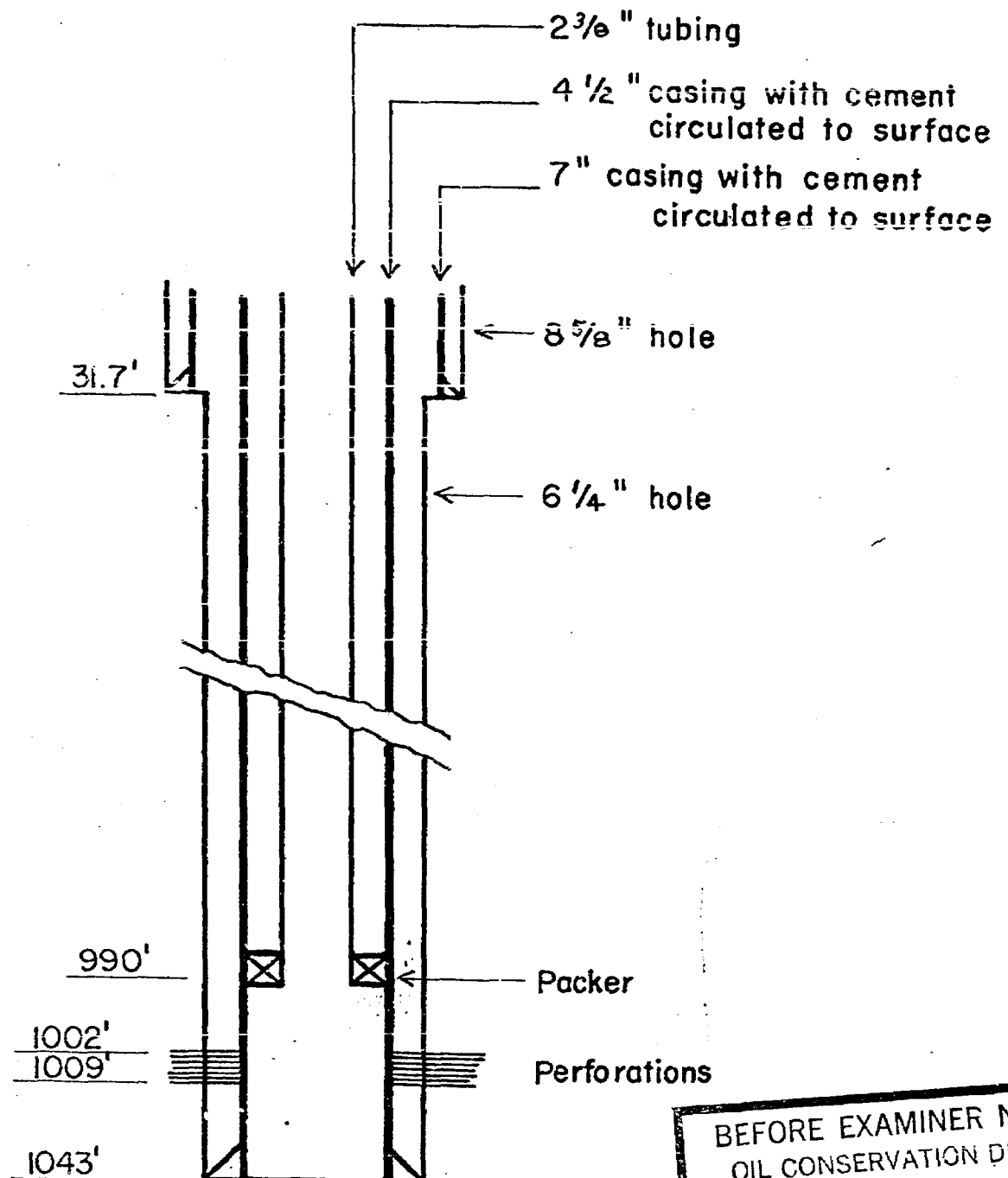
San Luis Federal Well No. 2  
2278' FSL 2296' FWL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6749' GL



BEFORE EXAMINER NUTTER  
OIL CONSERVATION DIVISION  
TORREON EXHIBIT NO. 6  
CASE NO. 6795

# TORREON OIL COMPANY

San Luis Federal Well No. 1  
1650' FS L 1980' FW L  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6750' GL



BEFORE EXAMINER NUTTER  
OIL CONSERVATION DIVISION  
TORREON EXHIBIT NO. 7  
CASE NO. 6795

CORE LABORATORIES INC.  
3425 Stanford Dr. N.E.  
Albuquerque, New Mexico 87107  
Phone: 505-344-0274

ANALYTICAL REPORT

From Torreon Oil Company  
Address P. O. Box 356, Flora Vista, N. M. 87415  
Work authorized by Noel Reynolds Date Received 8-7-78  
Analyzed by RGC Date 8-11-78 Job No. WA-136

Sample Identification

Well No. C. B. Harvey Fed. 1 Location N.E. S.W. Sec 21 T18NR3W  
Field San Luis - N.M. Formation Meneffe  
County  Interval 1000-1010  
State New Mexico Sample From Produced water

Resistivity 3.91 ohm-meters @ 68 F. Specific Gravity 1.001 @ 68 F.

Calculated Total Dissolved Solids 2697.4 Hydrogen Sulfide N.D.\*

pH 8.20

<u>Cations</u>	<u>Mg/L</u>	<u>Meq/L</u>	<u>Anions</u>	<u>Mg/L</u>	<u>Meq/L</u>
Sodium	<u>747.0</u>	<u>32.50</u>	Sulfate	<u>N.D.</u>	<u></u>
Potassium	<u>3.6</u>	<u>.09</u>	Chloride	<u>117.0</u>	<u>3.30</u>
Calcium	<u>4.6</u>	<u>.23</u>	Carbonate	<u>N.D.</u>	<u></u>
Magnesium	<u>2.0</u>	<u>.16</u>	Bicarbonate	<u>1820</u>	<u>29.85</u>
Iron	<u>3.2</u>	<u>.17</u>			
Total Cations		<u>33.15</u>	Total Anions		<u>33.15</u>

\*N.D. = not detected, less than 0.1 mg/l

BEFORE EXAMINER NUTTER	
OIL CONSERVATION DIVISION	
TORREON	EXHIBIT NO. <u>8</u>
CASE NO.	<u>6775</u>



CORE LABORATORIES INC.  
3428 Stanford Dr. N.E.  
Albuquerque, New Mexico 87107  
Phone: 505-344-0274

ANALYTICAL REPORT

From Torreon Oil Company  
Address P. O. Box 356, Flora Vista, N. M. 87415  
Work authorized by Noel Reynolds Date Received August 9, 1978  
Analyzed by RGC Date August 22, 1978 Job No WA-144

Sample Identification

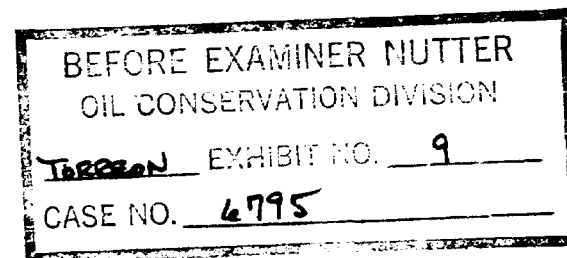
Well No. #1 Water Well Location N.W. S.E. Sec. 21T 18N R3W  
Field San Luis N. M. Formation Entrada  
County \_\_\_\_\_ Interval 4660'  
State New Mexico Sample From Produced water

Resistivity 0.62 ohm-meters @ 68 F. Specific Gravity 1.011 @ 68 F.  
Calculated Total Dissolved Solids 14,449.5 Hydrogen Sulfide Not detected

pH 7.65

<u>Cations</u>	<u>Mg/L</u>	<u>Meq/L</u>	<u>Anions</u>	<u>Mg/L</u>	<u>Meq/L</u>
Sodium	<u>4420.0</u>	<u>192.25</u>	Sulfate	<u>7200.0</u>	<u>149.76</u>
Potassium	<u>31.0</u>	<u>0.79</u>	Chloride	<u>2060.0</u>	<u>58.09</u>
Calcium	<u>364.0</u>	<u>18.16</u>	Carbonate	<u>N.D.*</u>	
Magnesium	<u>27.8</u>	<u>2.28</u>	Bicarbonate	<u>346.0</u>	<u>5.67</u>
Iron	<u>0.7</u>	<u>0.04</u>			
Total Cations		<u>213.52</u>	Total Anions		<u>213.52</u>

\*N.D. = not detected, less than 0.1 mg/l



CORE LABORATORIES INC.  
3425 Stanford Dr. N.E.  
Albuquerque, New Mexico 87107  
Phone: 505-344-0274

ANALYTICAL REPORT

From Torreon Oil Company  
Address P. O. Box 356, Flora Vista, N. M. 87415  
Work authorized by Noel Reynolds Date Received 8-7-78  
Analyzed by RGC Date 8-11-78 Job No. WA-136

Sample Identification

Well No. C. B. Harvey Fed. 1 Location N.E. S.W. Sec 21 T18NR3W  
Field San Luis - N.M. Formation Meneffe  
County \_\_\_\_\_ Interval 1000-1010  
State New Mexico Sample From Produced water

Resistivity 3.91 ohm-meters @ 68 F. Specific Gravity 1.001 @ 68 F.  
Calculated Total Dissolved Solids 2697.4 Hydrogen Sulfide N.D.\*

pH 8.20

<u>Cations</u>	<u>Mg/L</u>	<u>Meq/L</u>	<u>Anions</u>	<u>Mg/L</u>	<u>Meq/L</u>
Sodium	<u>747.0</u>	<u>32.50</u>	Sulfate	<u>N.D.</u>	
Potassium	<u>3.6</u>	<u>.09</u>	Chloride	<u>117.0</u>	<u>3.30</u>
Calcium	<u>4.6</u>	<u>.23</u>	Carbonate	<u>N.D.</u>	
Magnesium	<u>2.0</u>	<u>.16</u>	Bicarbonate	<u>1820</u>	<u>29.85</u>
Iron	<u>3.2</u>	<u>.17</u>			
Total Cations		<u>33.15</u>	Total Anions		<u>33.15</u>

\*N.D. = not detected, less than 0.1 mg/l

BEFORE EXAMINER NUTTER  
OIL CONSERVATION DIVISION  
TORREON EXHIBIT NO. 8  
CASE NO. 6795

CORE LABORATORIES INC.  
3428 Stanford Dr. N.E.  
Albuquerque, New Mexico 87107  
Phone: 505-344-0274

ANALYTICAL REPORT

From Torreon Oil Company  
Address P. O. Box 356, Flora Vista, N. M. 87415  
Work authorized by Noel Reynolds Date Received August 9, 1978  
Analyzed by RGC Date August 22, 1978 Job No WA-144

Sample Identification

Well No. #1 Water Well Location N.W. S.E. Sec. 21T 18N R3W  
Field San Luis N. M. Formation Entrada  
County \_\_\_\_\_ Interval 4660'  
State New Mexico Sample From Produced water

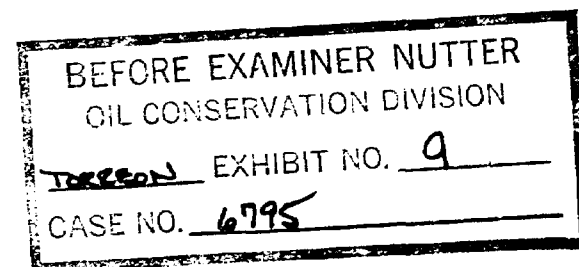
Resistivity 0.62 ohm-meters @ 68 F. Specific Gravity 1.011 @ 68 F.

Calculated Total Dissolved Solids 14,449.5 Hydrogen Sulfide Not detected

pH 7.65

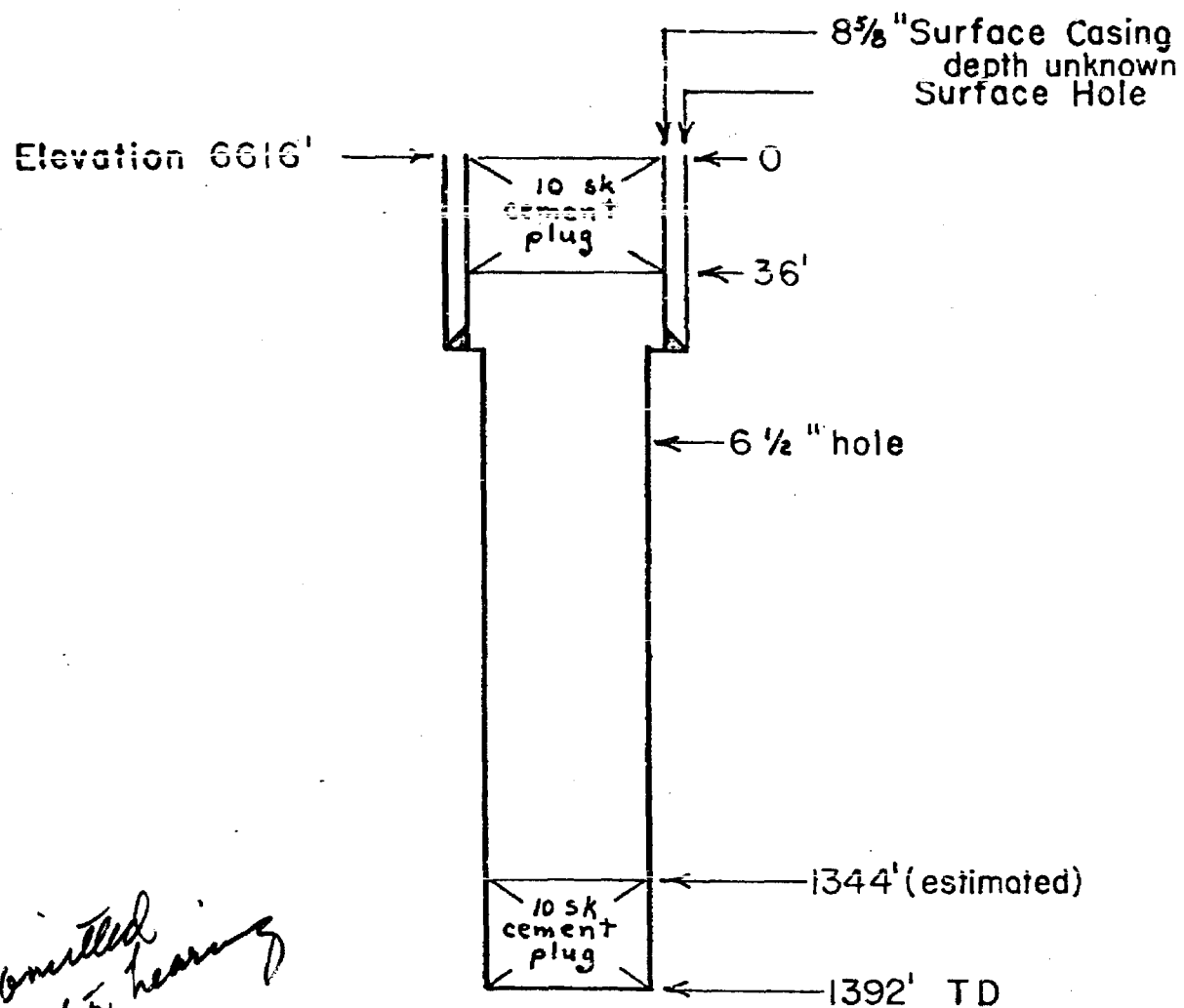
<u>Cations</u>	<u>Mg/L</u>	<u>Meq/L</u>	<u>Anions</u>	<u>Mg/L</u>	<u>Meq/L</u>
Sodium	<u>4420.0</u>	<u>192.25</u>	Sulfate	<u>7200.0</u>	<u>149.76</u>
Potassium	<u>31.0</u>	<u>0.79</u>	Chloride	<u>2060.0</u>	<u>58.09</u>
Calcium	<u>364.0</u>	<u>18.16</u>	Carbonate	<u>N.D.*</u>	_____
Magnesium	<u>27.8</u>	<u>2.28</u>	Bicarbonate	<u>346.0</u>	<u>5.67</u>
Iron	<u>0.7</u>	<u>0.04</u>			
Total Cations		<u>213.52</u>	Total Anions		<u>213.52</u>

\*N.D. = not detected, less than 0.1 mg/l



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

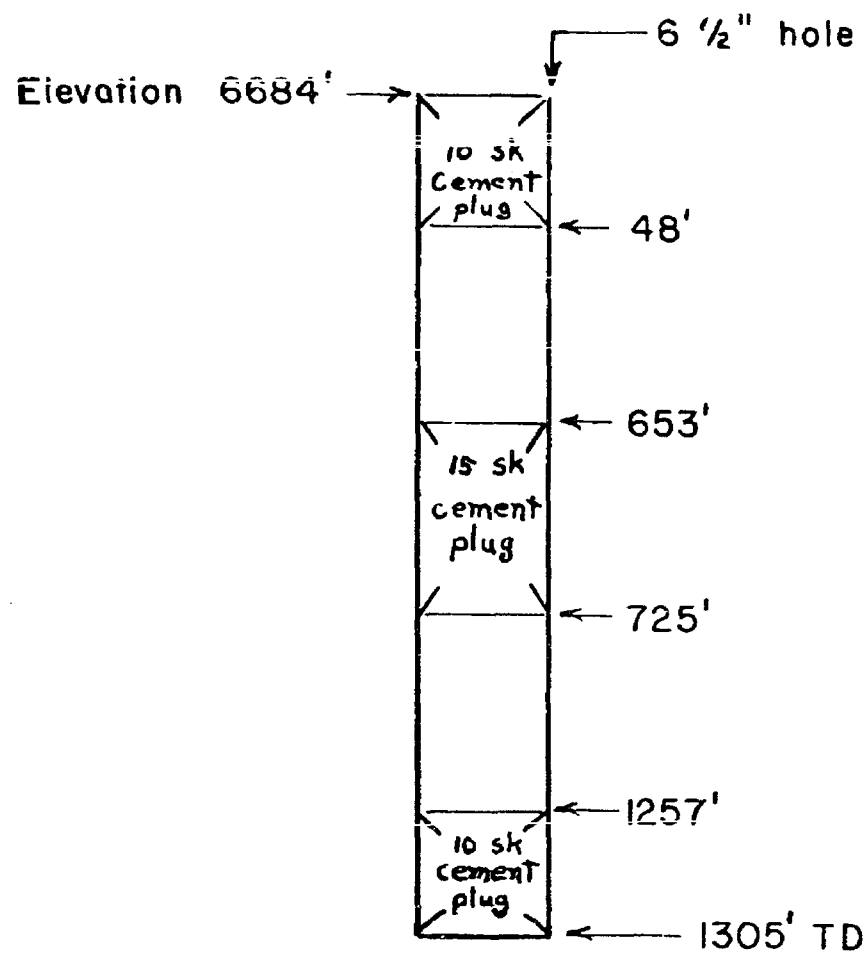
HUGHES ROLLINS #1  
1485' FSL 165' FE L  
Section 20, Township 18 N, Range 3W  
Sandoval County, New Mexico



*submitted  
after hearing*

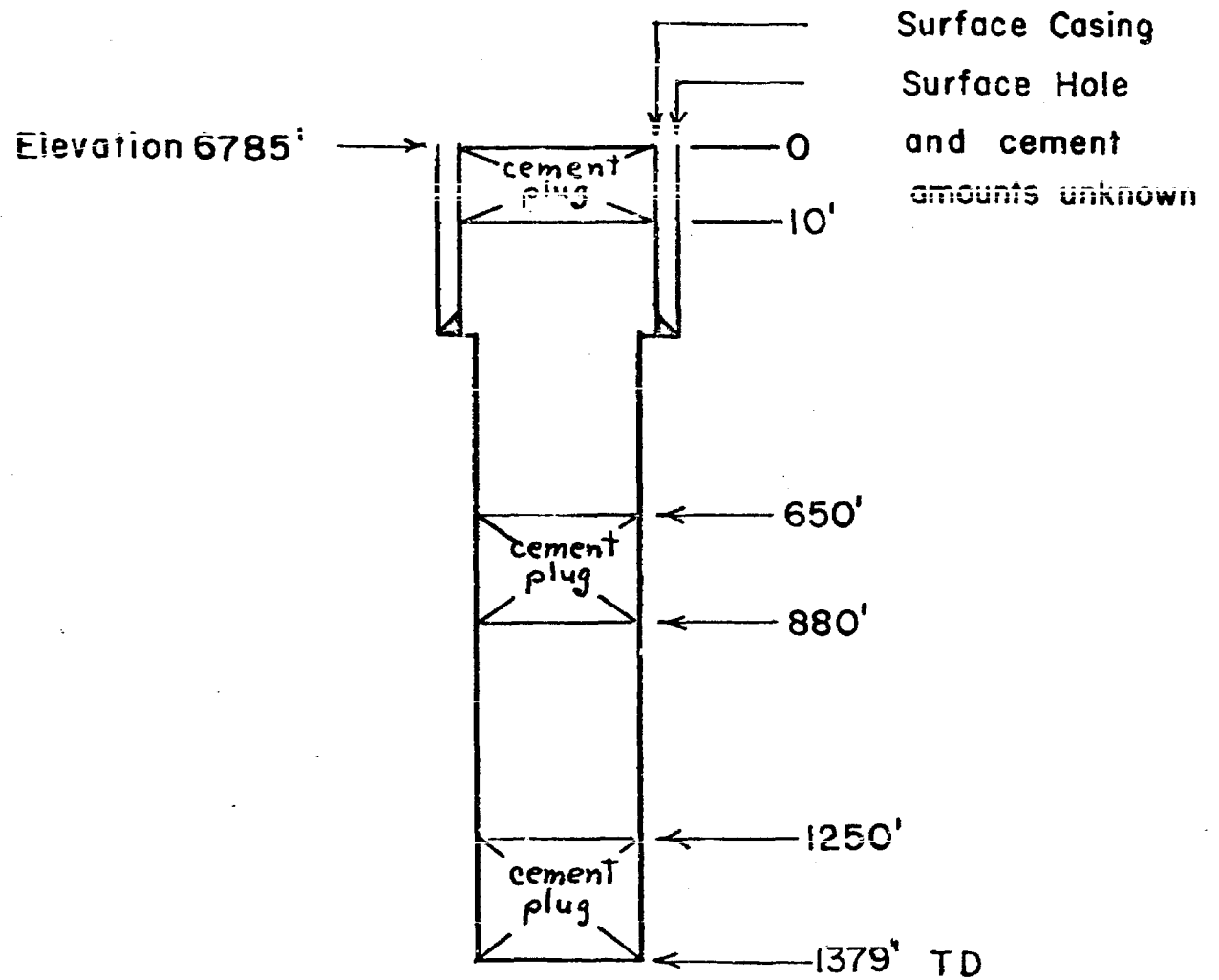
SAN LUIS FIELD  
ABANDONED WELL—PLUGGING DIAGRAM

ROLLINS DODGEN #1  
2475' FNL 1155' FWL  
Section 21, T18N, R3W  
Sandoval County, New Mexico



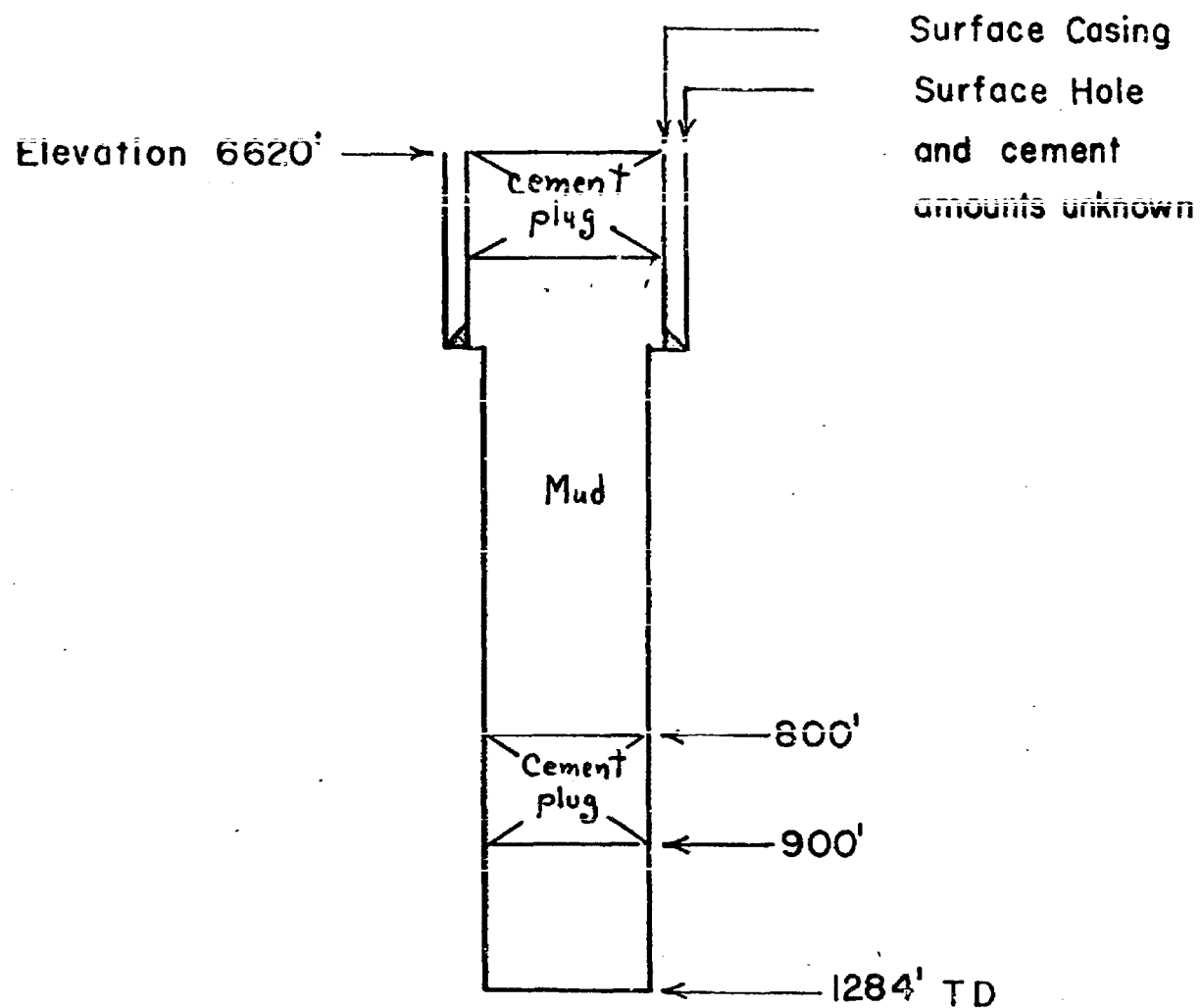
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

HARVEY GARTNER WARD #5  
2475' FNL 2310' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



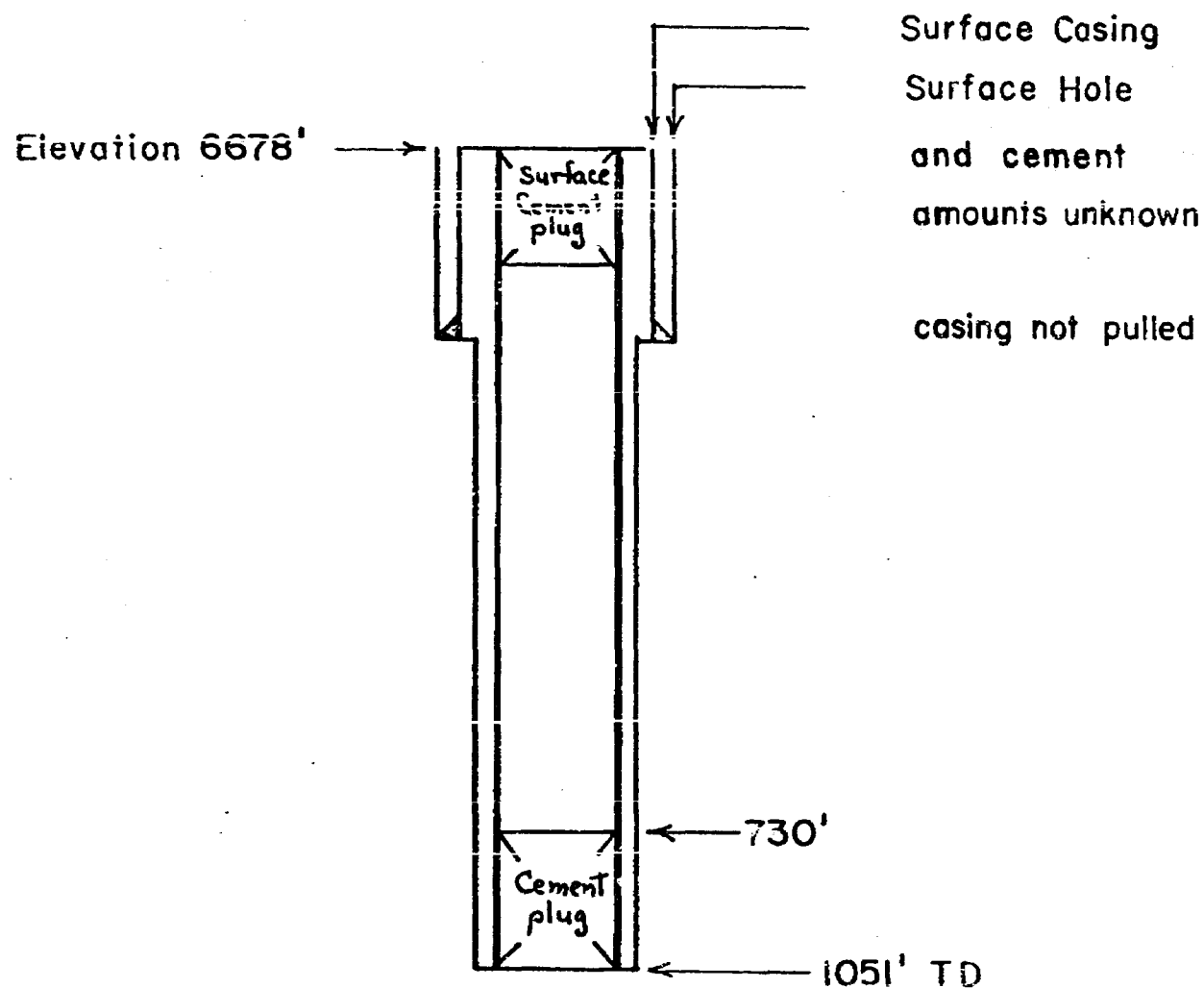
SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

UMBERGER - GARTNER #1  
1915' FNL 429' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

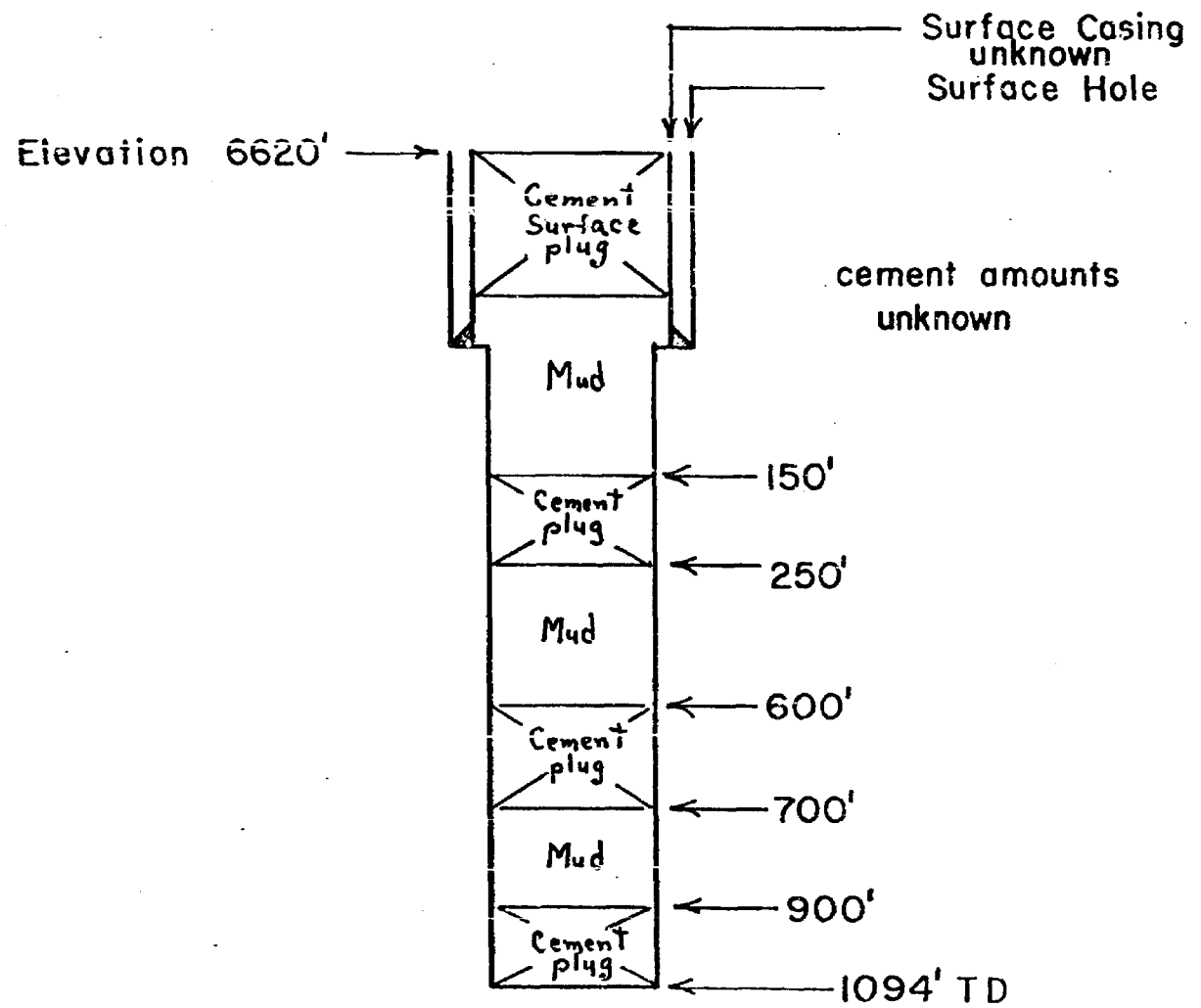
UMBERGER GARTNER # 2  
1980' FNL 509' FE L  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico





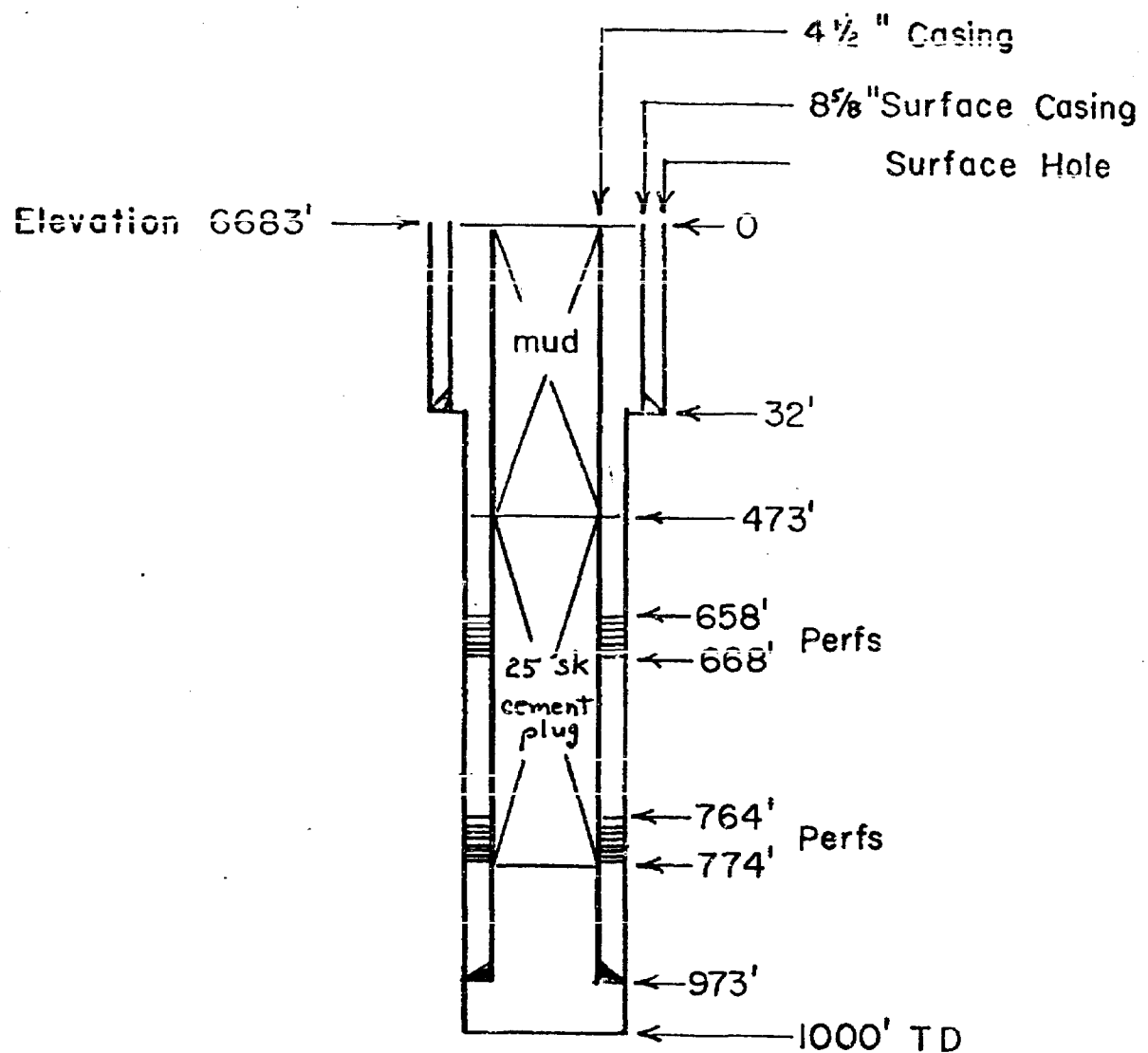
SAN LUIS FIELD  
ABANDONED WELL -- PLUGGING DIAGRAM

HARVEY GARTNER #3  
2310' FNL 990' FEL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

RISING FEDERAL #3  
1485' FSL 1155' FWL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

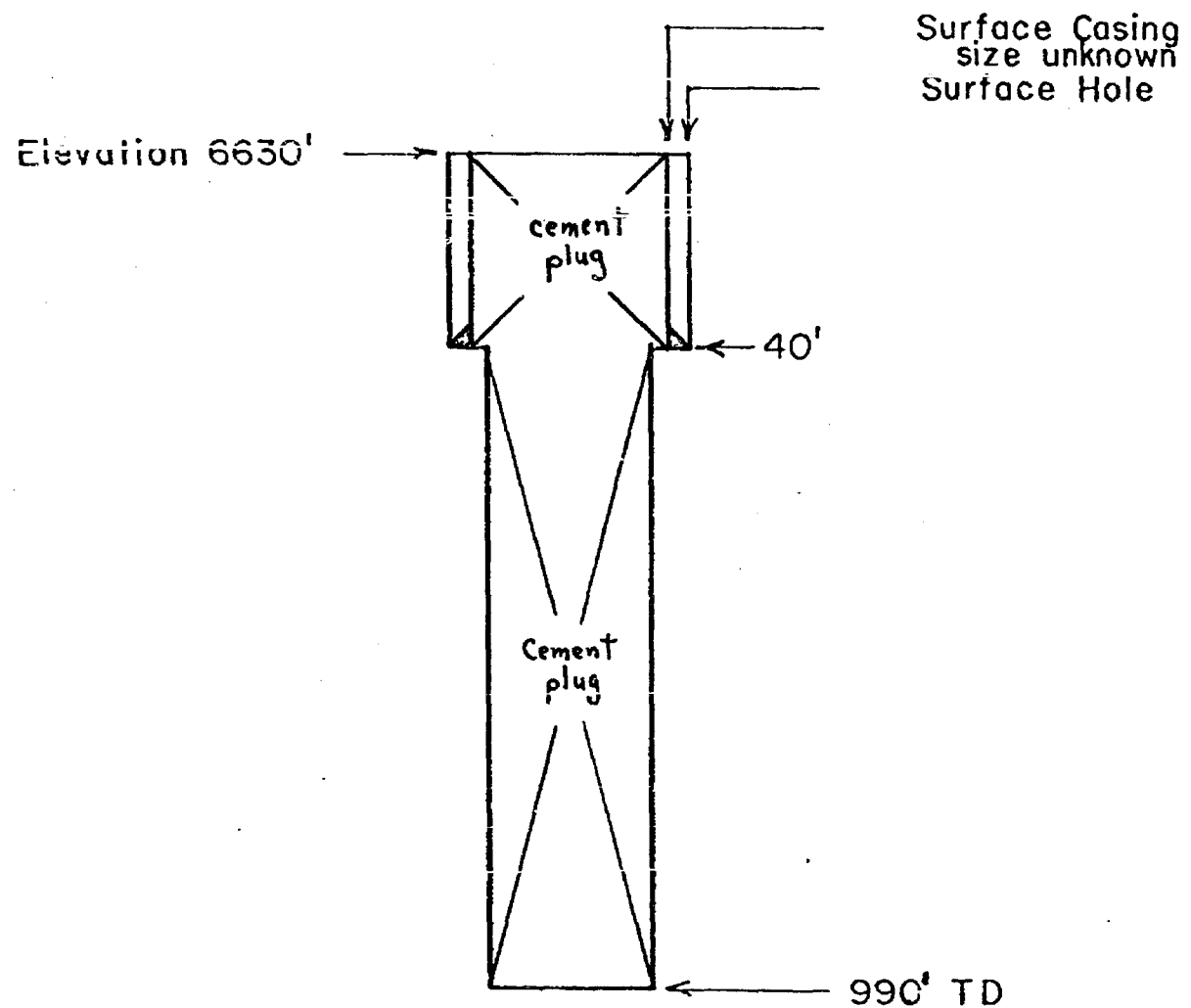
WOOSLEY FEDERAL #1

330' FSL

990' FWL

Section 21, Township 18 N, Range 3W

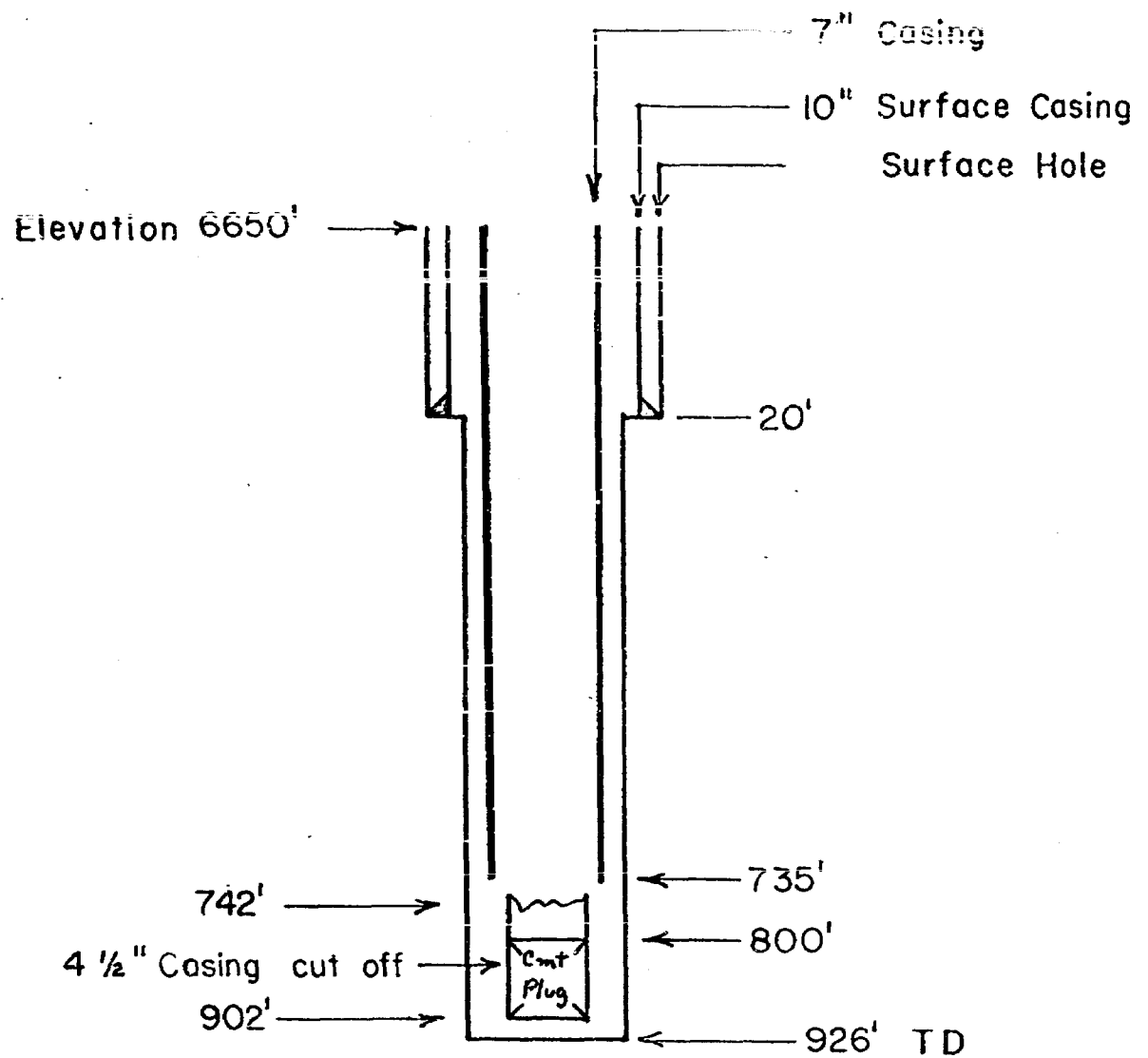
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

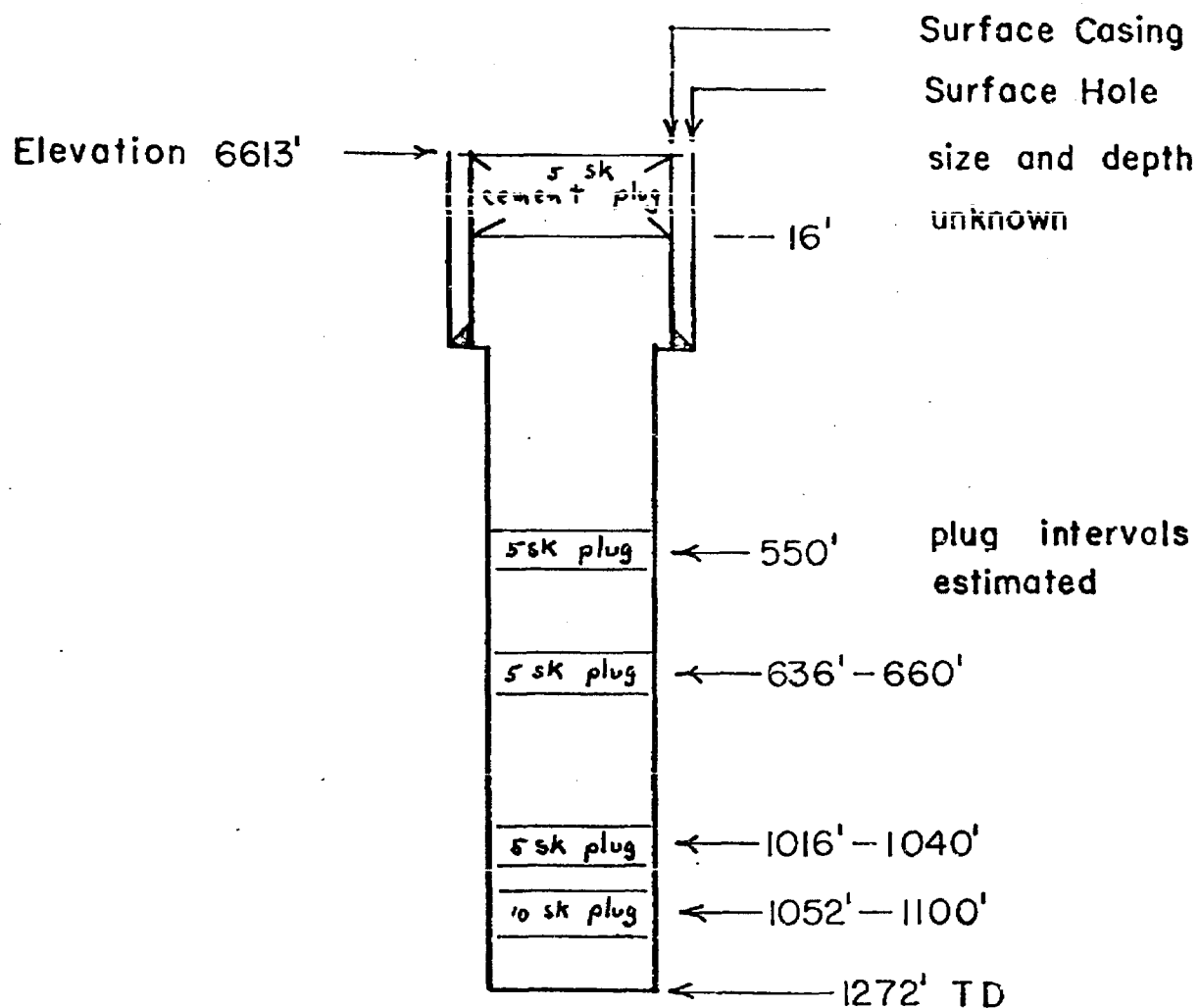
MYERS — KING #1

1155' FSL      2475' FWL  
Section 21, Township 18 N, Range 3W  
Sandoval County, New Mexico



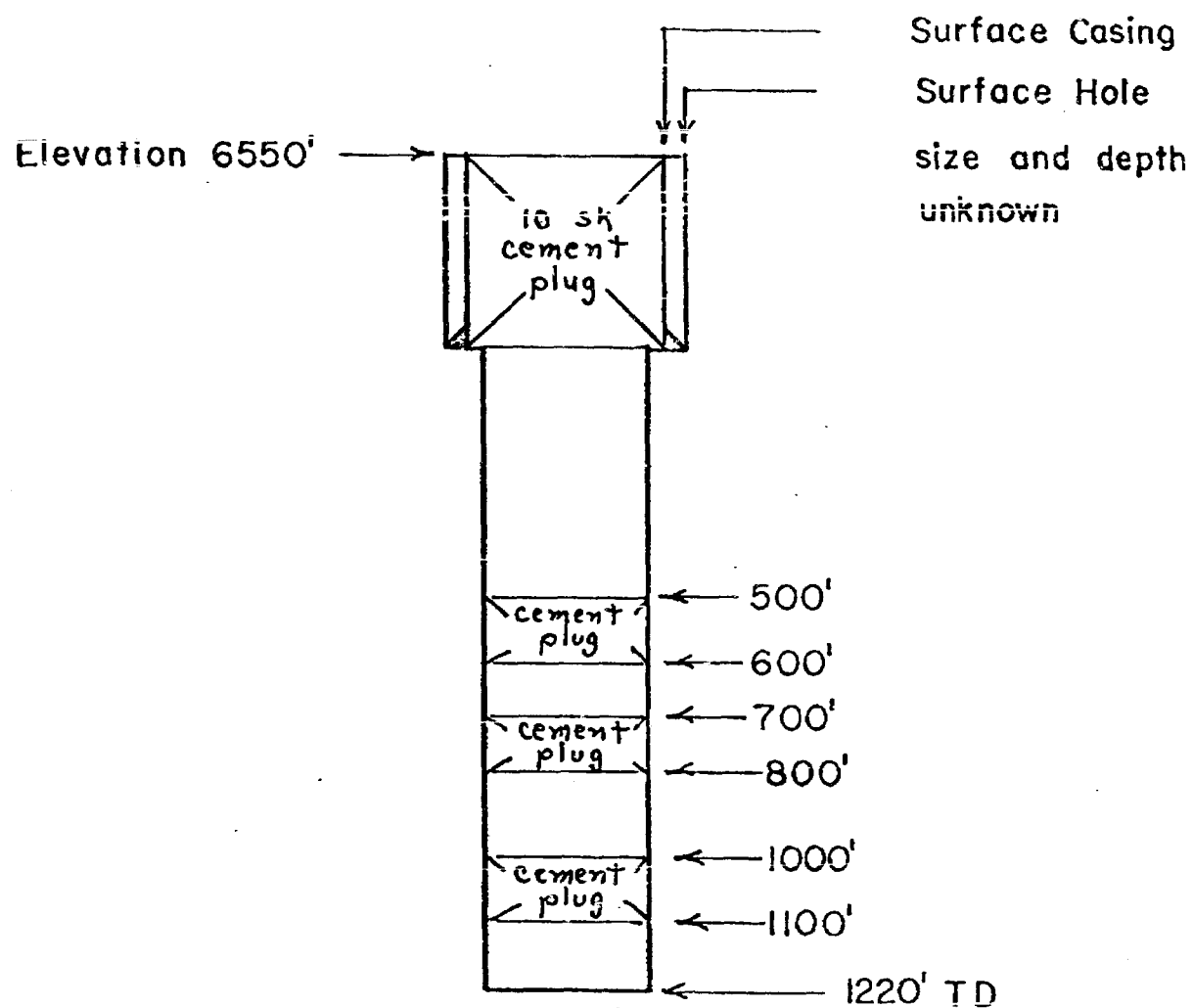
SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

HOLMES - HOLMES A #1  
660' FNL 547' FE L  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



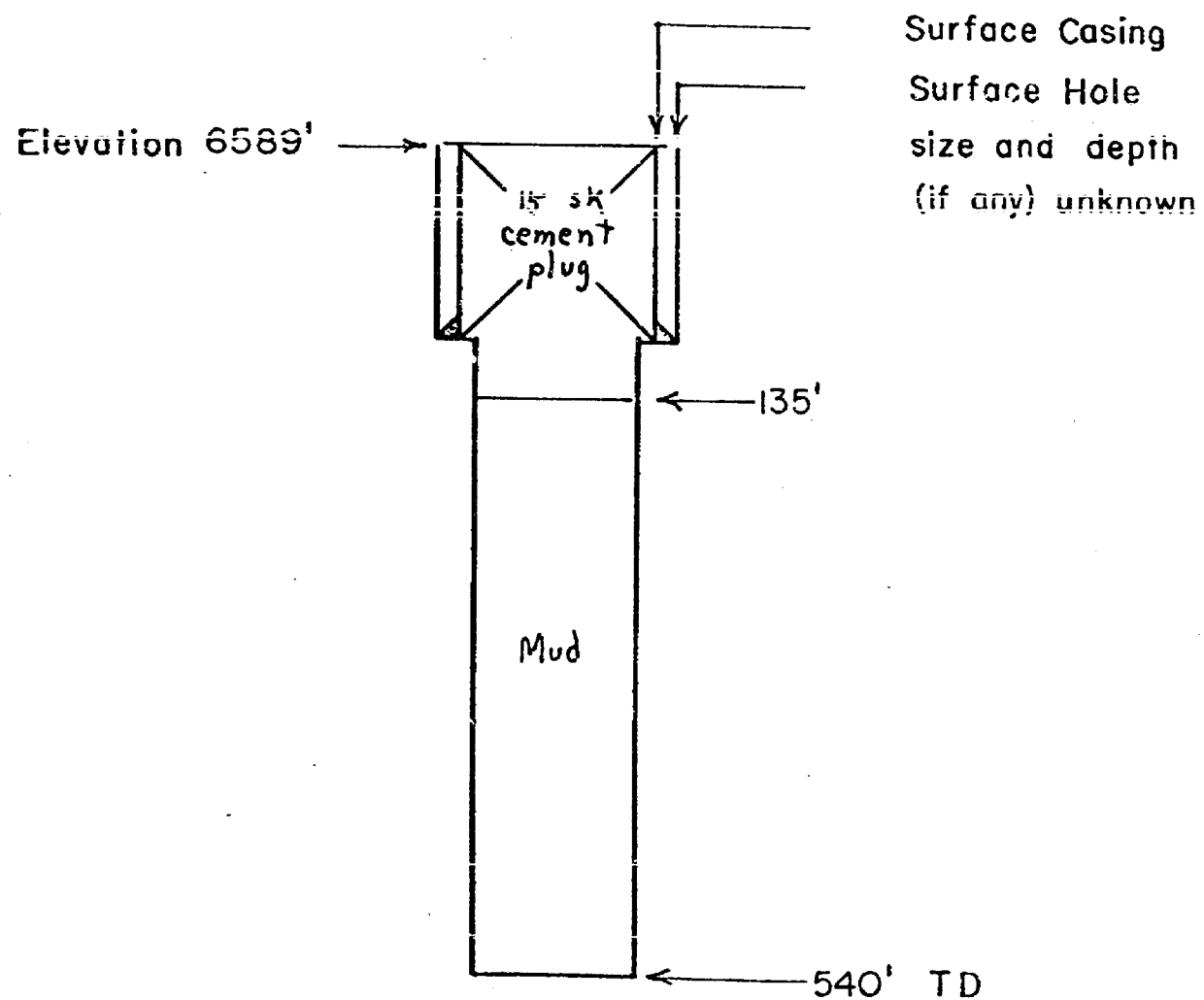
# SAN LUIS FIELD ABANDONED WELL — PLUGGING DIAGRAM

HOLMES — ROREX FEDERAL #1  
660' FNL 1980' FE L  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



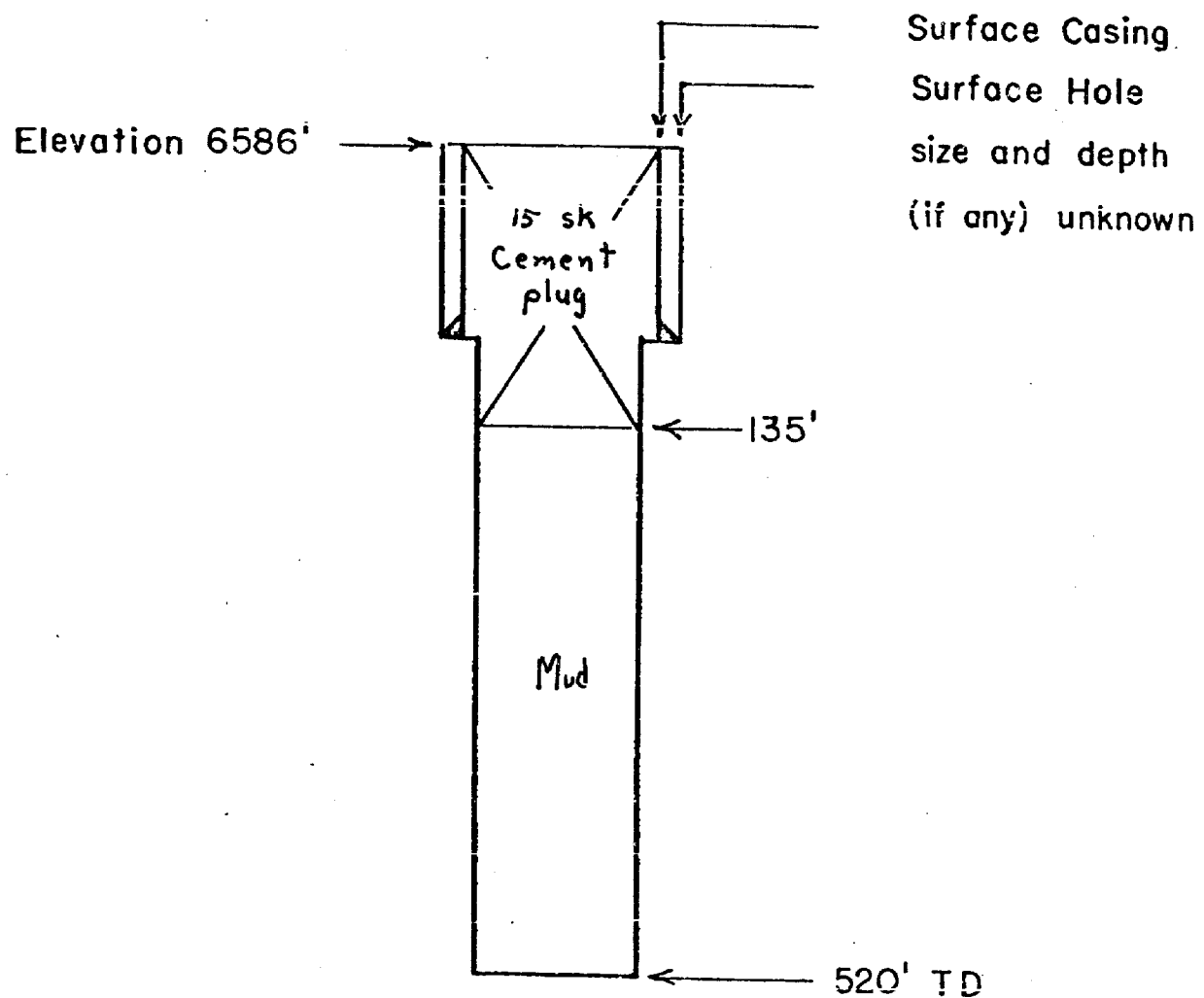
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

RISING FEDERAL # 1  
165' FNL 2145' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL - PLUGGING DIAGRAM

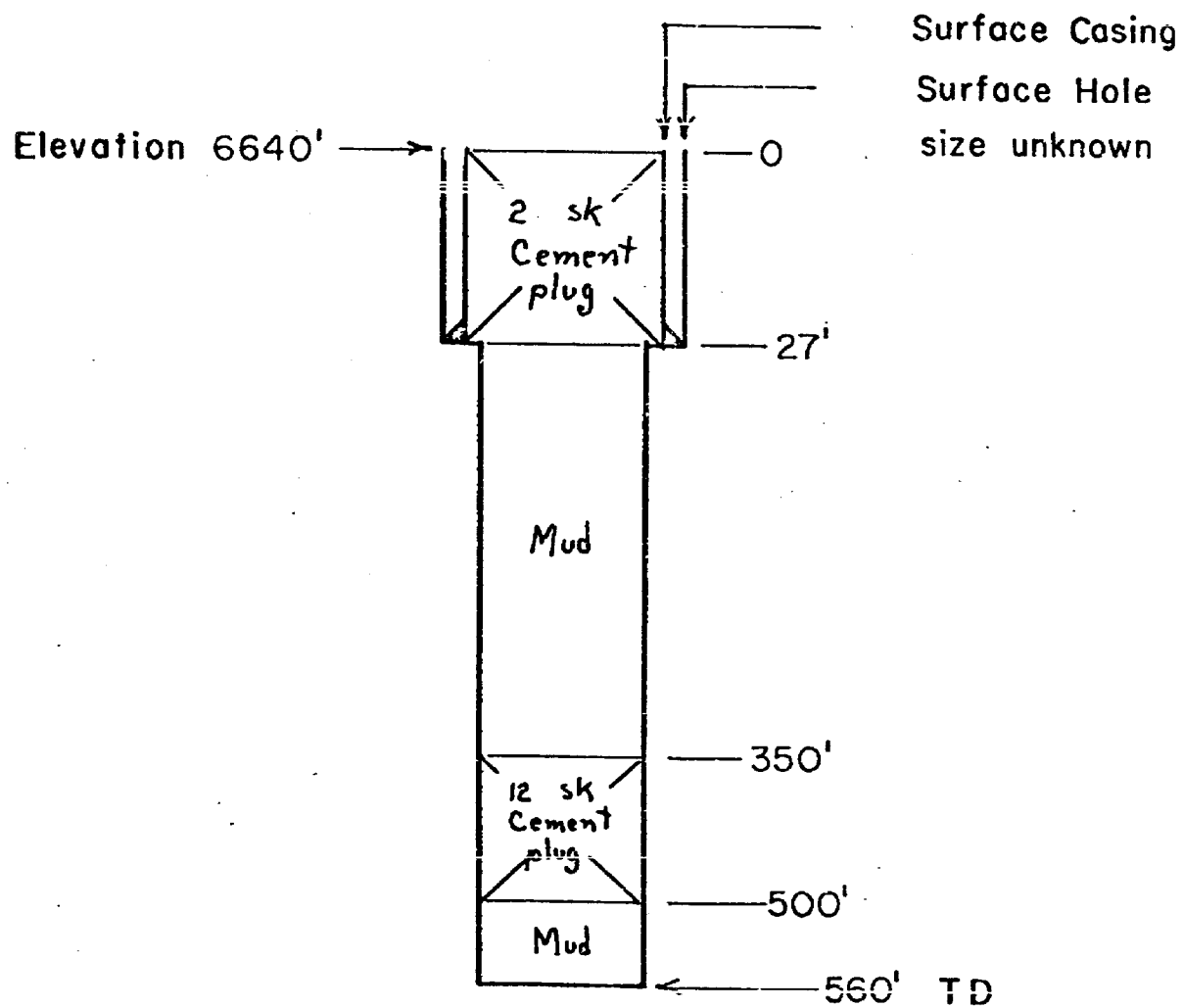
RISING - FEDERAL #2  
495' FNL 1815' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico





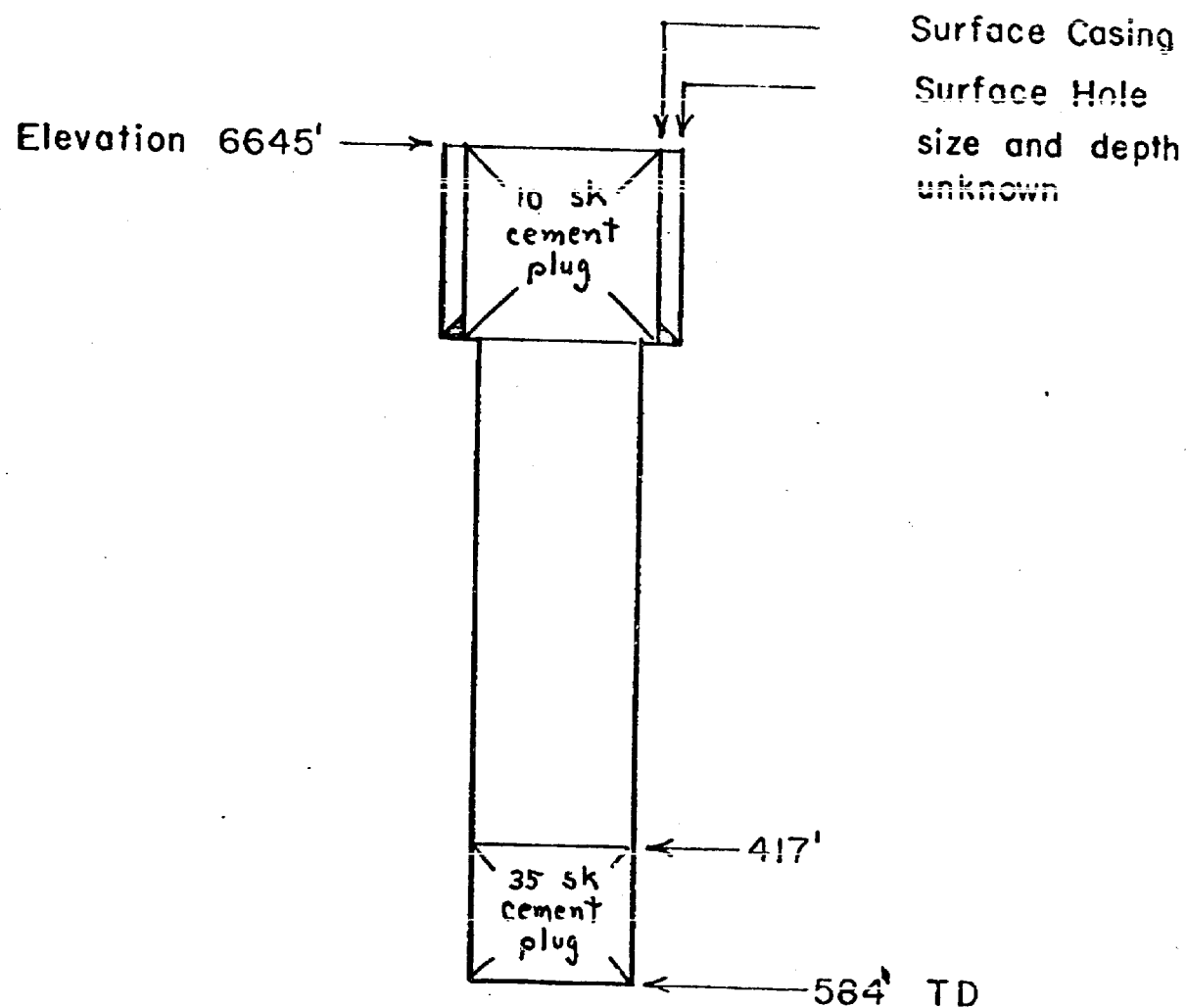
# SAN LUIS FIELD ABANDONED WELL — PLUGGING DIAGRAM

MORROW — ROLLINS — DODGEN #2  
165' FNL 1140' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

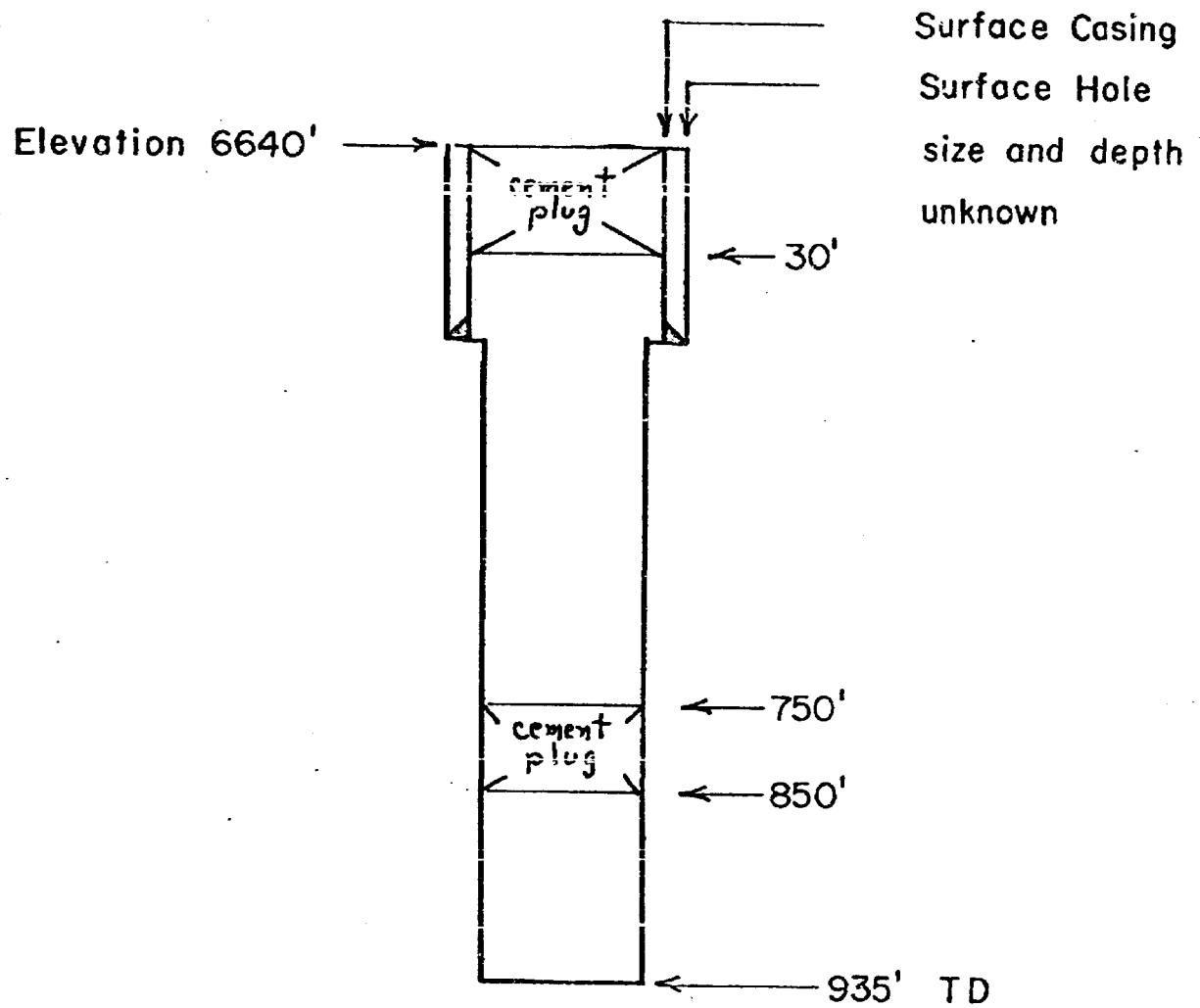
ROLLINS - DODGEN #3  
495' FNL 1155' FWL  
Section 28, Township 18 N, Range 3W  
Sandoval County, New Mexico



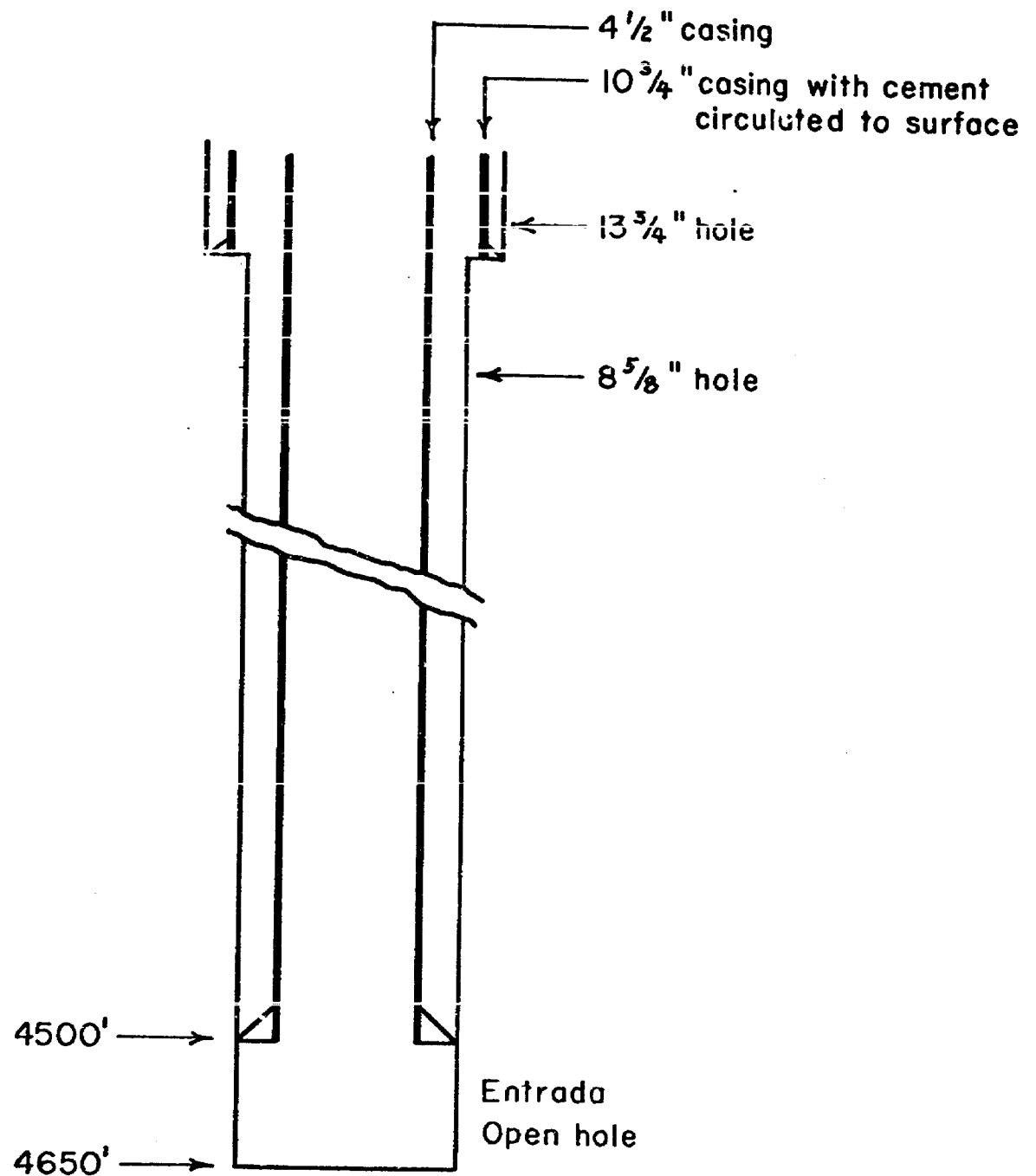
SAN LUIS FIELD  
ABANDONED WELL — PLUGGING DIAGRAM

EL PAMCO — MYRA #3

660' FNL 330' FE L  
Section 29, Township 18 N, Range 3W  
Sandoval County, New Mexico

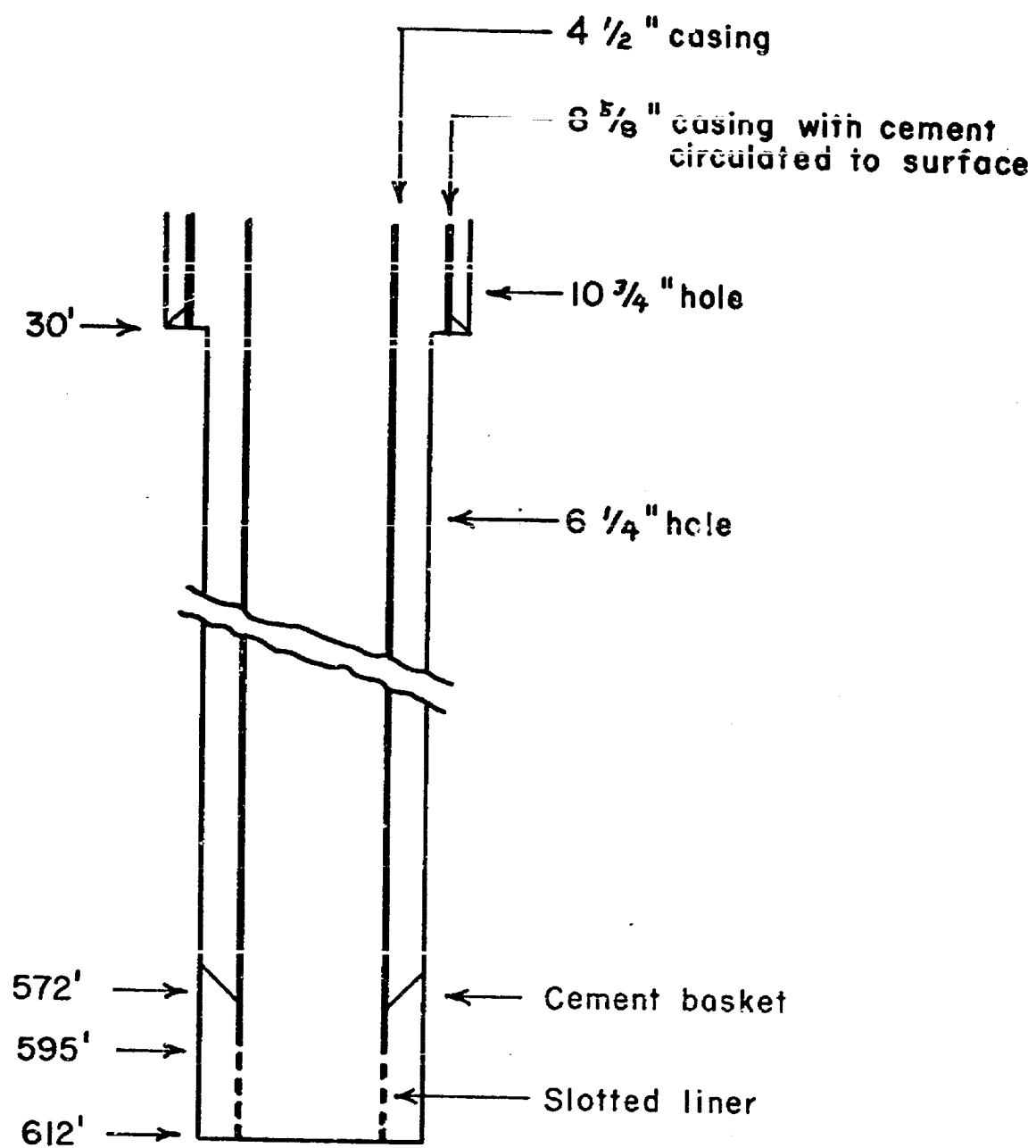


TORREON OIL COMPANY  
(PETROLEUM DEV. COMPANY)  
San Luis Federal Well No. 1  
1980 FSL 2010 FEL  
Section 21, T18 N, R3W  
Sandoval County, New Mexico  
(Water Source Well)



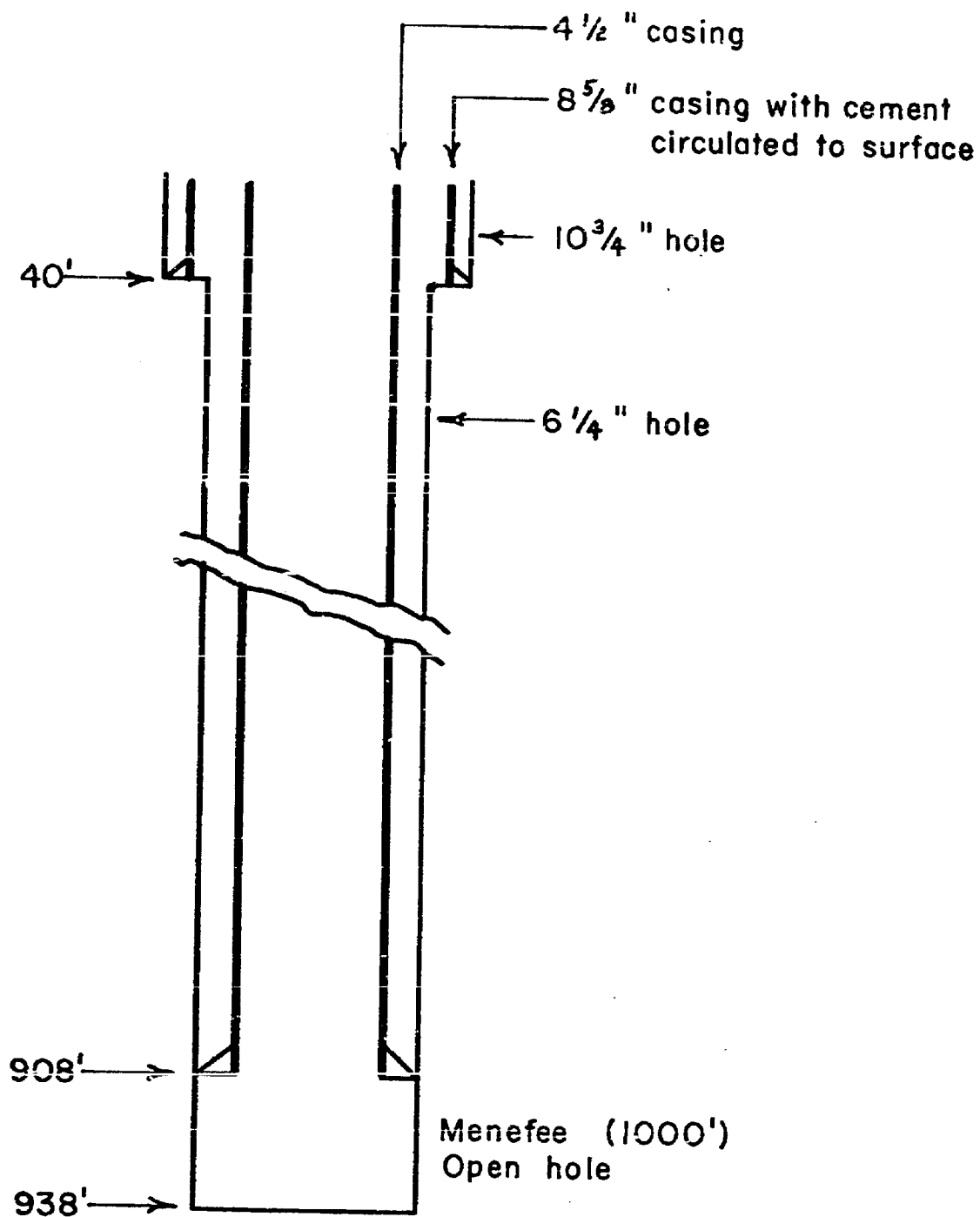
# TORREON OIL COMPANY

San Luis Federal Well No. 3  
2164 FSL 1600 FEL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico



# TORREON OIL COMPANY

HARVEY — Harvey A# 3)  
San Luis Federal Well No. 12  
1862 FSL 2171 FEL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico



# TORREON OIL COMPANY

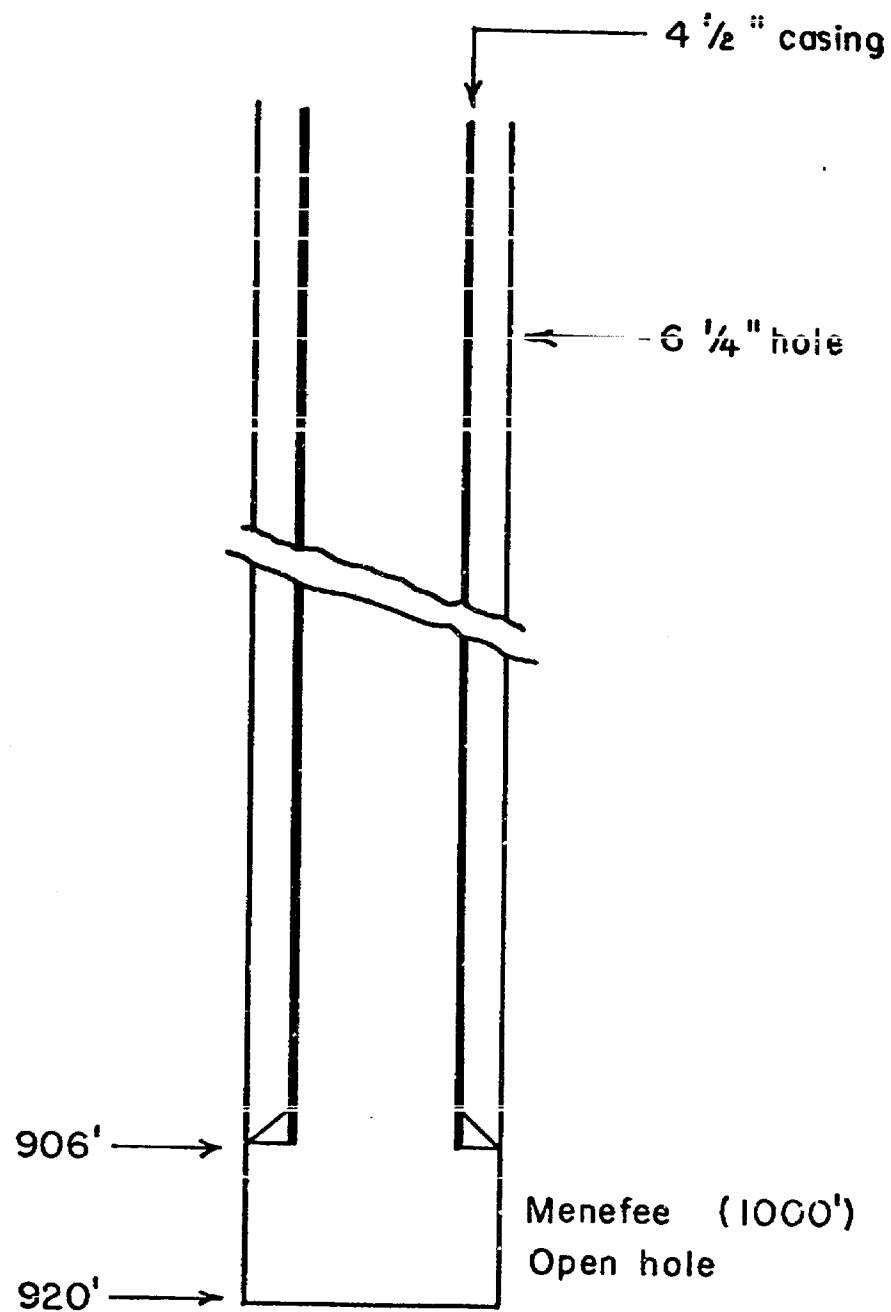
(HARVEY - Harvey A # 4)

San Luis Federal Well No. 13

1691 FSL 1701 FEL

Section 21, T 18 N, R 3 W

Sandoval County, New Mexico



TORREON OIL COMPANY

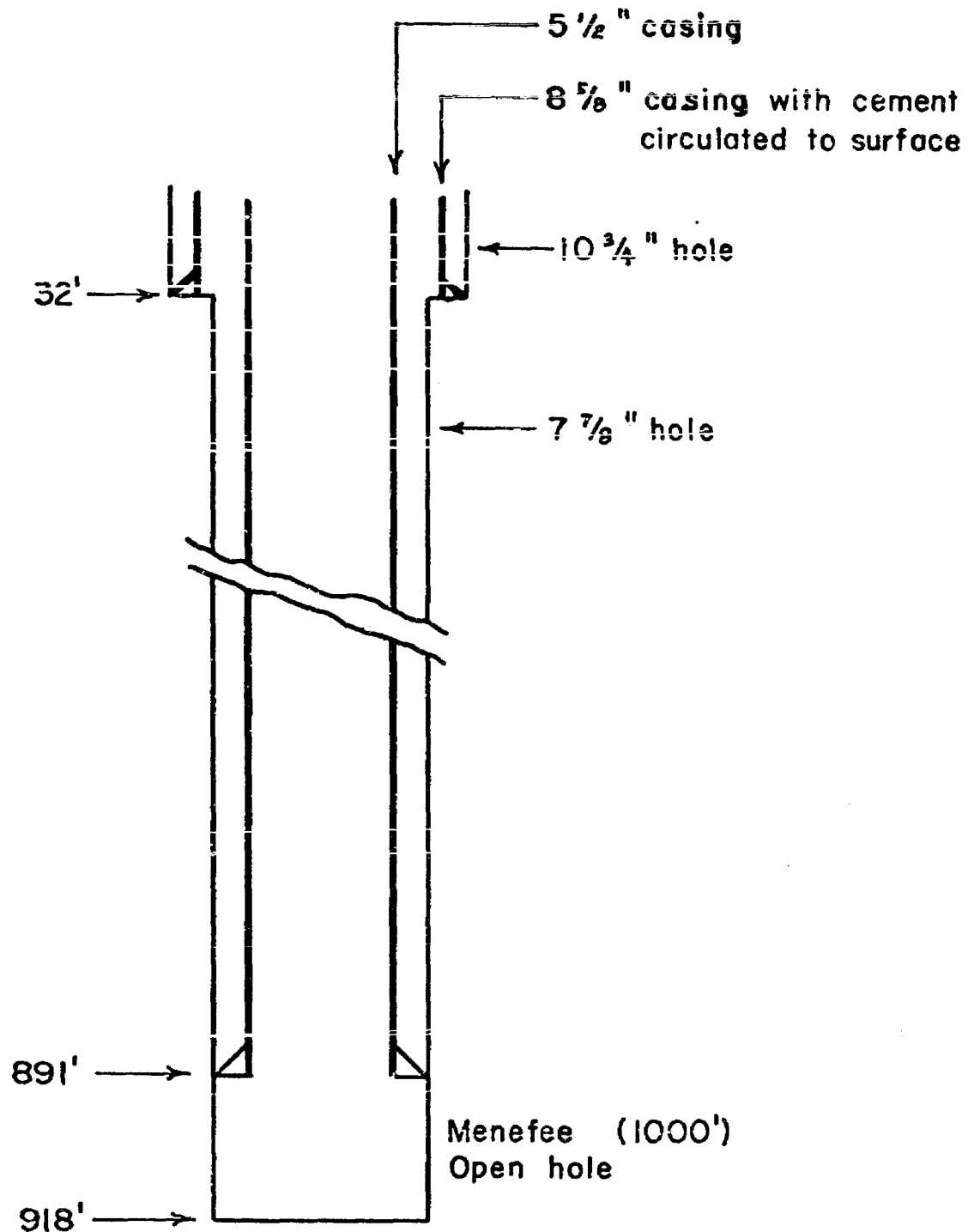
(HARVEY — Harvey A # 1)

San Luis Federal Well No. 11

1424 FSL 2294 FEL

Section 21, T18N, R3W

Sandoval County, New Mexico





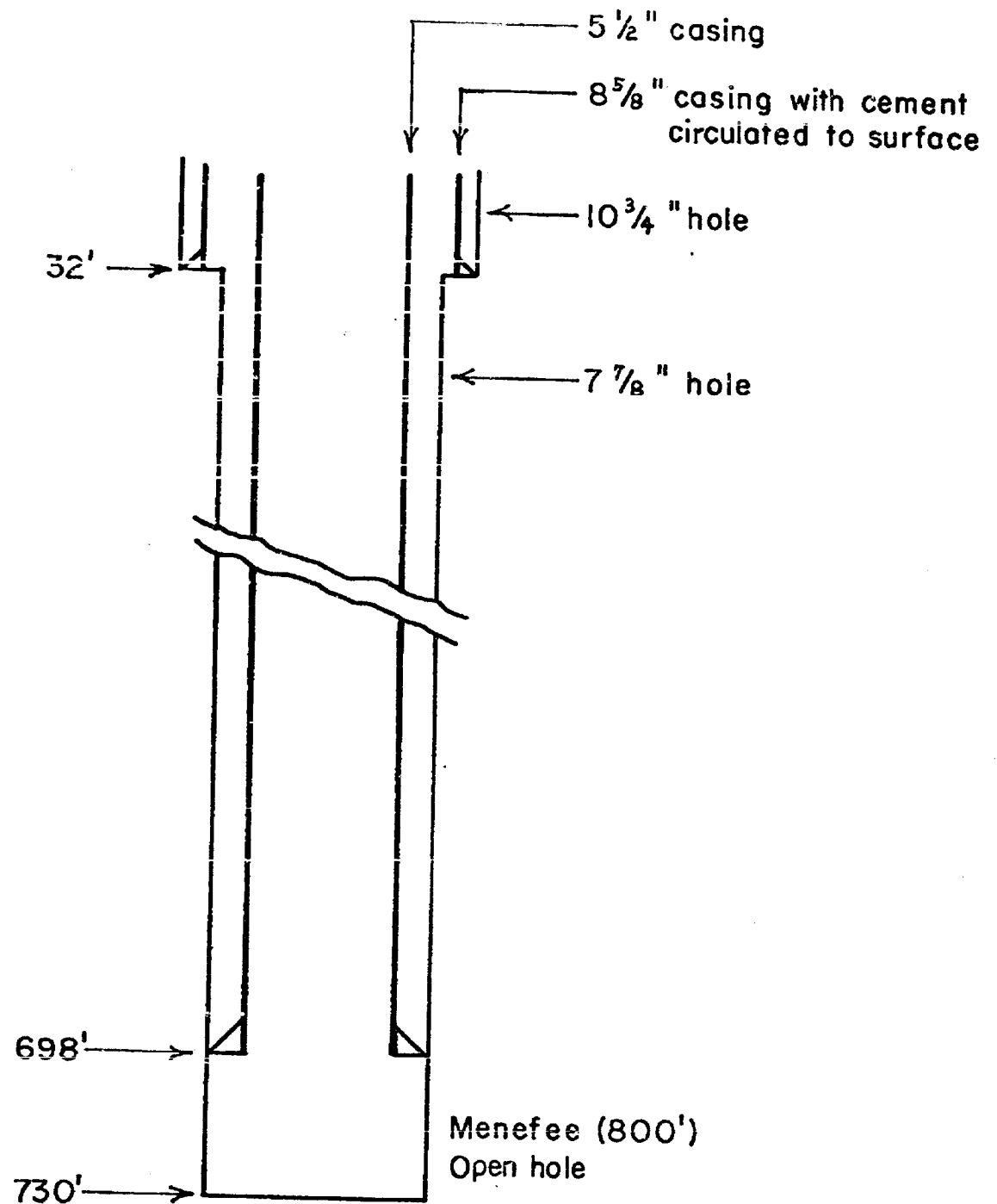
# TORREON OIL COMPANY

(HARVEY - Harvey A # IX)

San Luis Federal Well No. 14

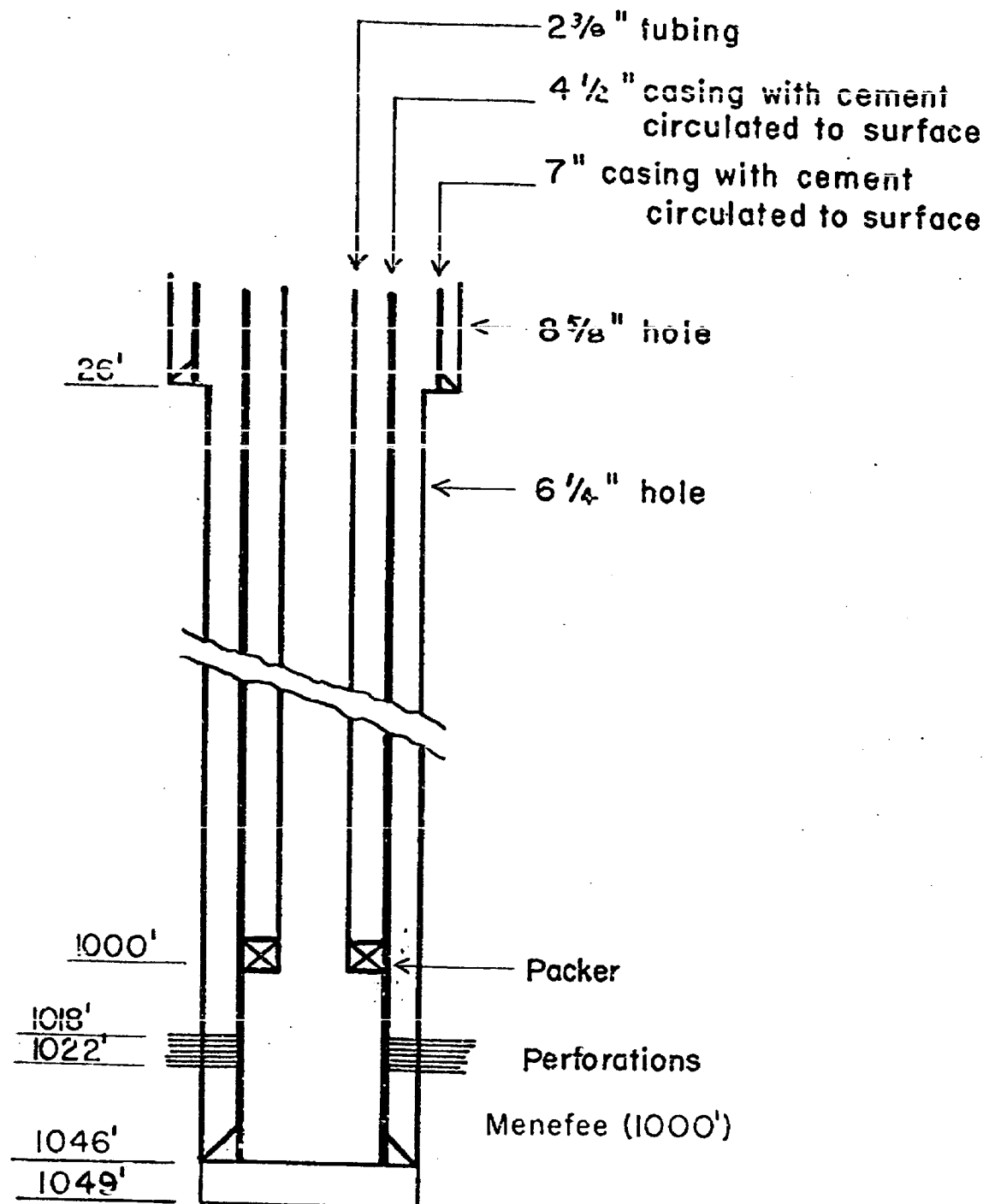
1670 FSL 2309 FEL  
Section 21, T 18 N, R 3 W

Sandoval County, New Mexico



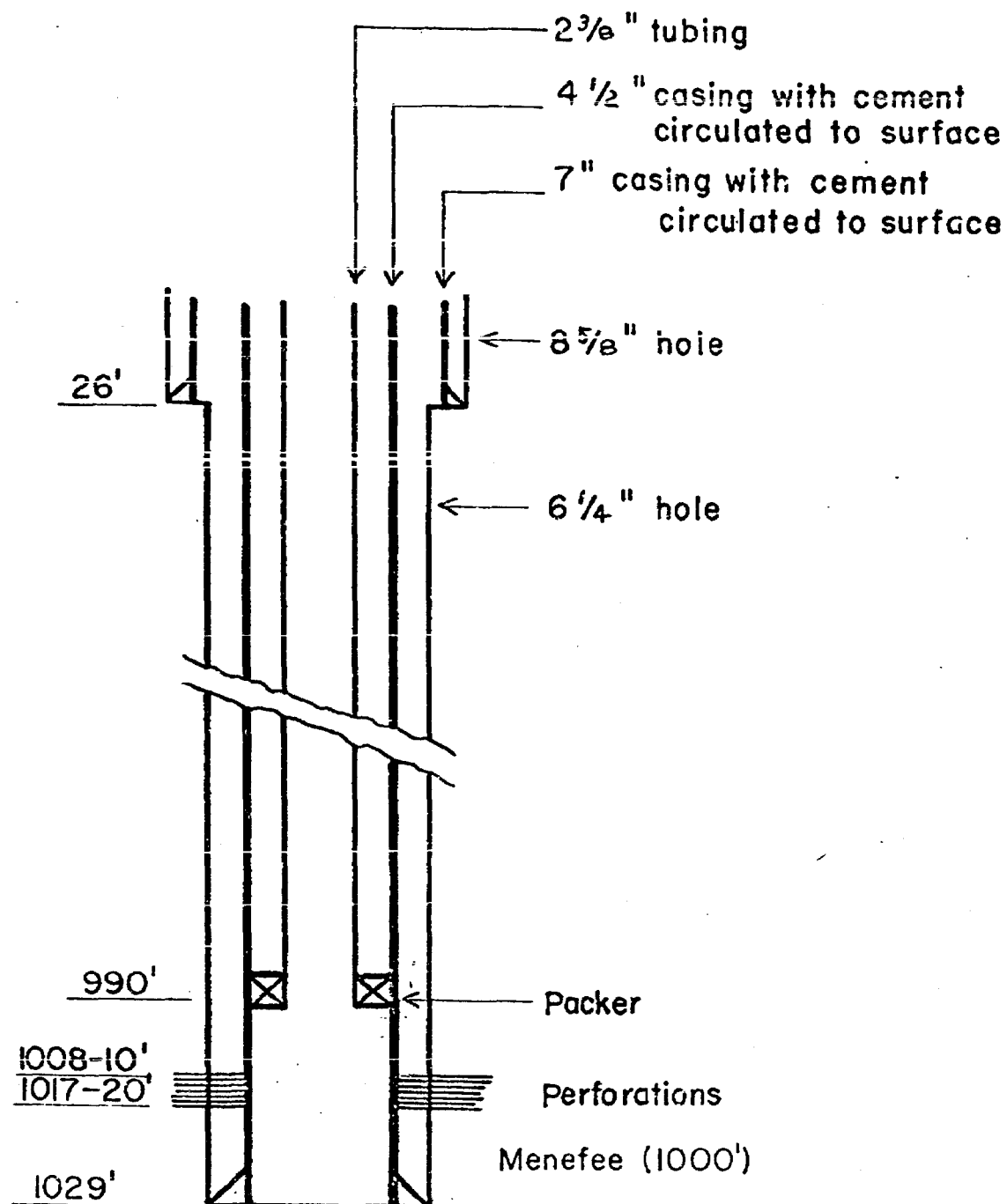
# TORREON OIL COMPANY

San Luis Federal Well No. 4 (Alt.)  
2490' FS L      2310' FE L  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6776' GL



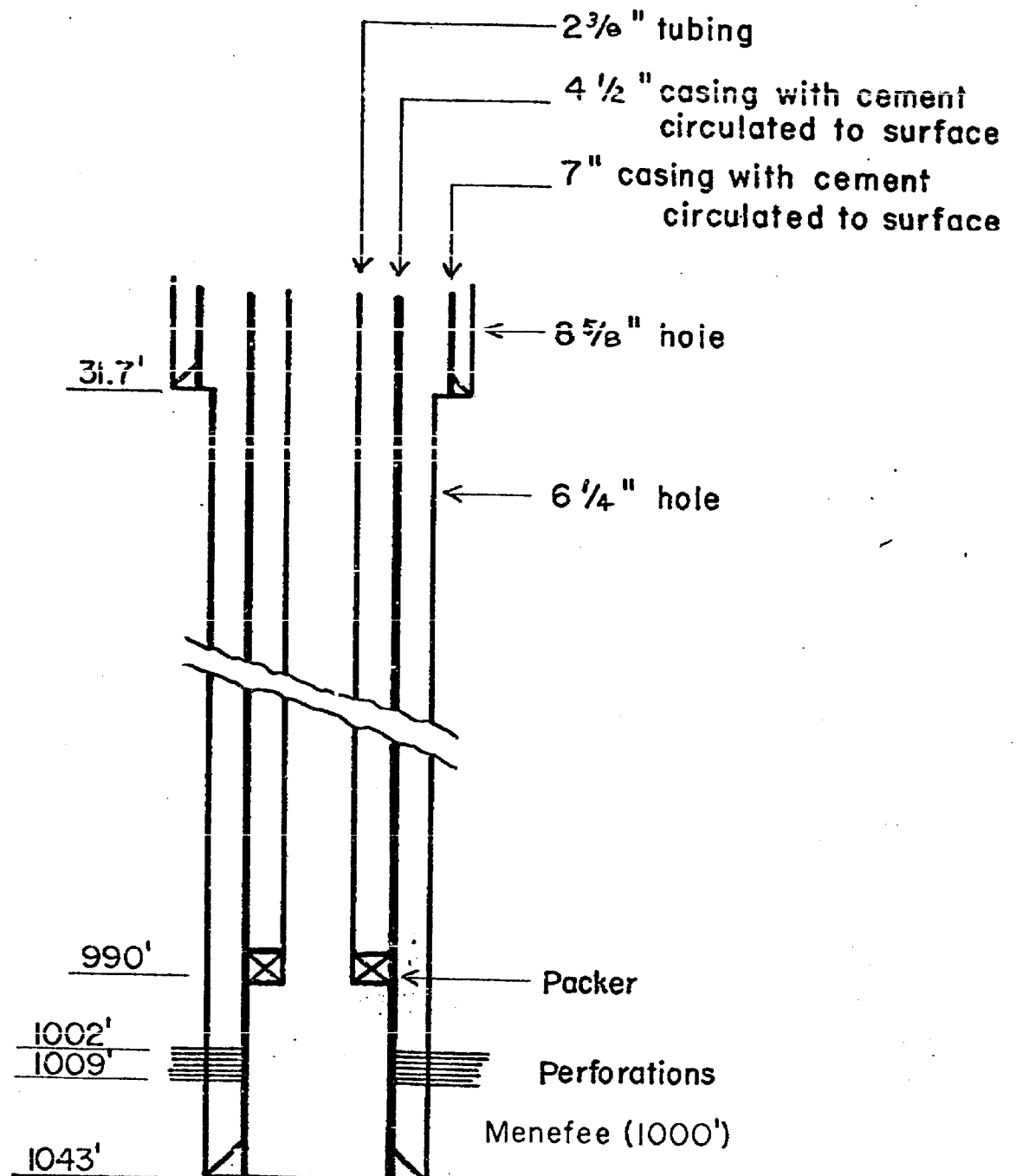
# TORREON OIL COMPANY

San Luis Federal Well No. 5  
2490' FSL 1470' FEL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6736 GL



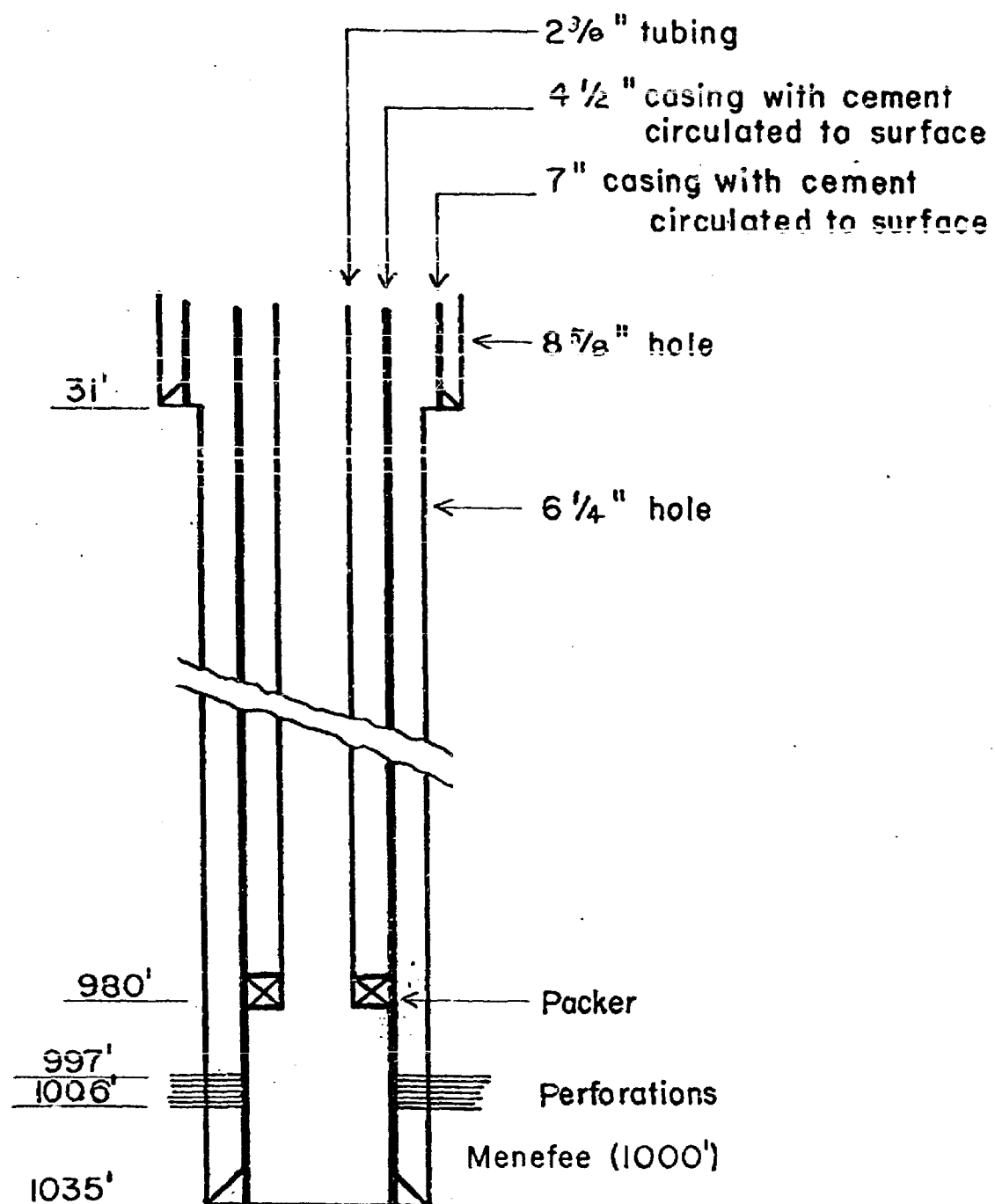
# TORREON OIL COMPANY

San Luis Federal Well No. 1  
1650' FSL 1980' FWL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6750' GL



# TORREON OIL COMPANY

San Luis Federal Well No. 2  
2278' FSL 2296' FWL  
Section 21, T 18 N, R 3 W  
Sandoval County, New Mexico  
Elevation 6749' GL



# TORREON OIL COMPANY

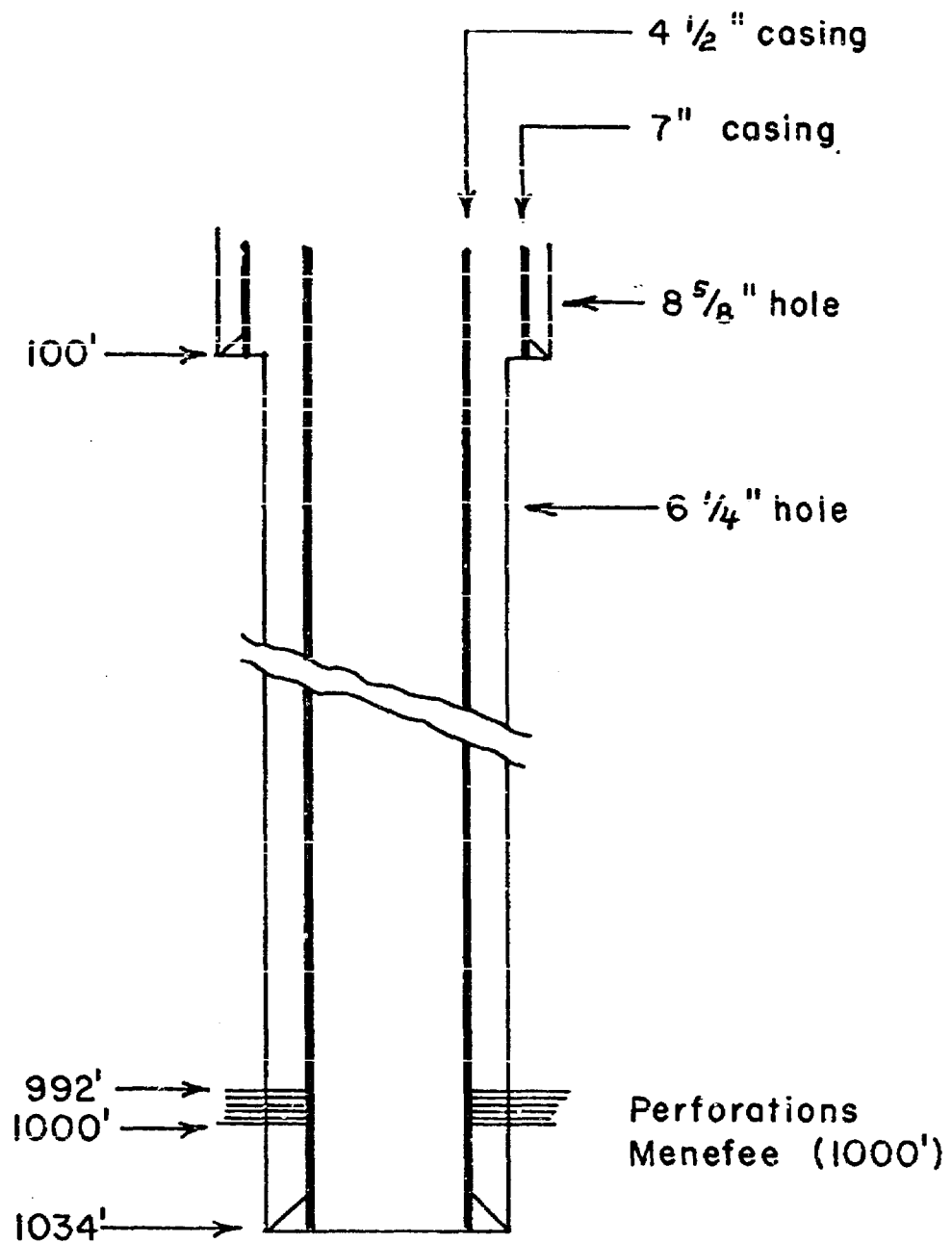
(HARVEY — Federal #1)

San Luis Federal Well No. 15

1520 FSL 2340 FWL

Section 21, T 18 N, R 3 W

Sandoval County, New Mexico



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

EXAMINER HEARING

IN THE MATTER OF:

Application of Torreon Oil Company for a ) CASE  
waterflood project, Sandoval County, New ) 6795  
Mexico. )

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

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

SALLY W. BOYD, C.S.R.  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 435-7405

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MR. NUTTER: Call Case Number 6795.

Which is the application of Torreon Oil Company for a waterflood project, Sandoval County, New Mexico.

This case has previously been heard and was continued to correct an error in the advertisement.

We'll call for appearances now in Case Number 6795.

No further appearance, we'll take the case under advisement.

(Hearing concluded.)

SALLY W. HOYD, C.S.F.  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7405



## REPORTER'S CERTIFICATE

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

Sally W. Boyd C.S.R.

SALLY W. BOYD, C.S.R.

Rt. 1 Box 191-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7405

I do hereby certify that the foregoing is a correct and true transcript of the proceedings in the Oil Conservation Division of Case No. 6795 heard by me on 2/13 1980.

[Signature] Examiner  
Oil Conservation Division

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

EXAMINER HEARING

IN THE MATTER OF:

Application of Torreon Oil Company for a ) CASE  
waterflood project, Sandoval County, New ) 6795  
Mexico. )

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation  
Division:

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

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

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MR. WINTER: Call Case Number 6795.

Which is the application of Torreon Oil Company for a waterflood project, Garza County, New Mexico.

This case has previously been heard and was continued to correct an error in the advertisement.

We'll call for appearances now in Case Number 6795.

No further appearance, we'll take the case under advisement.

(Hearing concluded.)

SALLY W. BOYD, C.S.R.  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7436

REPORTER'S CERTIFICATE

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the foregoing and attached Transcript of Hearing before the  
Oil Conservation Division was reported by me; that the said  
transcript is a full, true, and correct record of the hearing  
prepared by me to the best of my ability.

SALLY W. BOYD, C.S.R.  
Rt. 1 Box 191-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

I do hereby certify that the foregoing is  
a correct and true transcript of the proceedings in  
the transcript of hearing of Case No. 6745  
heard by me on 2/13 1980.

[Signature] Examiner  
Oil Conservation Division

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

EXAMINER HEARING

IN THE MATTER OF:

Application of Torreon Oil Company  
for a waterflood project, Sandoval  
County New Mexico.

CASE  
6795

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

For the Oil Conservation  
Division:

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

SALLY W. BOYD, C.S.R.  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone: (505) 455-7479

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MR. STAMETS: Call next Case 6795.

MR. PADILLA: Application of Torreon Oil Company for a waterflood project, Sandoval County, New Mexico.

MR. Examiner, in this case testimony and evidence was taken January 16th at the Examiner Hearing, and it was re-advertised because somehow or other it was not properly advertised in Rio Arriba County.

MR. STAMETS: Is there any further testimony or evidence in this case?

The case will be taken under advisement.

(Hearing concluded.)

SALLY W. HOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

REPORTER'S CERTIFICATE

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

Sally W. Boyd C.S.R.

I do hereby certify that the foregoing is a complete and correct transcript of the proceedings in the hearing of Case No. 6795 heard by me on 1-30 1980.  
Richard L. Plumb, Examiner  
 Oil Conservation Division

SALLY W. BOYD, C.S.R.  
 Rt. 1 Box 193-B  
 Santa Fe, New Mexico 87501  
 Phone (505) 425-7406

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

EXAMINER HEARING

IN THE MATTER OF:

Application of Torreon Oil Company  
for a waterflood project, Sandoval  
County, New Mexico.

CASE  
6795

BEFORE: Richard L. Stamets

TRANSCRIPT OF HEARING

For the Oil Conservation  
Division:

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

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



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MR. STAMETS: Call next Case 6795.

MR. PADILLA: Application of Torreon Oil  
Company for a waterflood project, Sandoval County, New Mexico.

MR. Examiner, in this case testimony and  
evidence was taken January 16th at the Examiner Hearing, and  
it was re-advertised because somehow or other it was not  
properly advertised in Rio Arriba County.

MR. STAMETS: Is there any further  
testimony or evidence in this case?

The case will be taken under advisement.

(Hearing concluded.)

SALLY W. HOYD, C.S.R.  
Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7408

## REPORTER'S CERTIFICATE

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

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

I do hereby certify that the foregoing is a true and correct transcript of the proceedings in the hearing of case No. \_\_\_\_\_, heard by me on \_\_\_\_\_ 19\_\_\_\_.

\_\_\_\_\_, Examiner  
Oil Conservation Division

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

EXAMINER HEARING

IN THE MATTER OF:

Application of Torreon Oil Company ) CASE  
for a waterflood project, sandoval ) 6795  
County, New Mexico. )

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Division: Ernest L. Padilla, Esq.  
Legal Counsel for the Division  
State Land Office Bldg.  
Santa Fe, New Mexico 87501

For the Applicant: William F. Carr, Esq.  
CAMPBELL & BLACK P. A.  
Jefferson Place  
Santa Fe, New Mexico 87501

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

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

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# I N D E X

C. L. HILL

Direct Examination by Mr. Carr	3
Cross Examination by Mr. Nutter	11

# E X H I B I T S

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

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MR. NUTTER: We'll call next Case Number 6795.

MR. PADILLA: Application of Torreon Oil Company for a waterflood project, Sandoval County, New Mexico.

MR. CARR: May it please the Examiner, my name is William F. Carr, Campbell and Black, P. A., appearing on behalf of the applicant.

I have one witness who needs to be sworn.

(Witness sworn.)

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

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your full name and place of residence?

A C. L. Hill, Cortez, Colorado.

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

A Torreon Oil as consultant, consulting

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Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

1 engineer.

2 Q Have you previously testified before  
3 this Commission and had your credentials accepted and made  
4 a matter of record?

5 A No, I have not.

6 Q Will you review briefly for the Examiner  
7 your educational background and your work experience?

8 A Yes, I have a Bachelor's and Master's  
9 degrees in petroleum engineering from the University of  
10 Oklahoma and Louisiana State University. I am a Registered  
11 Professional Engineer in Colorado. I have approximately  
12 twenty years experience with Core Laboratories, Incorporated,  
13 and Superior Oil Company, in a reservoir engineering  
14 capacity.

15 MR. NUTTER: What's your first name  
16 again, Mr. Hill?

17 A Charles, C. L.

18 MR. NUTTER: Thank you.

19 Q Are you familiar with the application  
20 of Torreon Oil Company in this case?

21 A Yes.

22 Q Are you familiar with the area which is  
23 the general subject matter of this case?

24 A Yes.

25 MR. CARR: Are the witness' qualifications

SALLY W. BOYD, C.S.R.  
 Rt. 1 Box 193-B  
 Santa Fe, New Mexico 87501  
 Phone (505) 455-7403

1 acceptable?

2 MR. NUTTER: Yes, they are.

3 Q Mr. Hill, have you prepared for intro-  
 4 duction in this case certain exhibits?

5 A Yes, I have.

6 Q Will you please refer to what has been  
 7 marked for identification as Applicant's Exhibit Number One  
 8 and explain to the Examiner what it is and what it shows?

9 A Exhibit Number One is a lease plat  
 10 showing the area in question, the area outlined in red in  
 11 Section 21 in the center of the map is the lease that Tor-  
 12 reon proposes to flood.

13 This map shows various wells that are  
 14 there or have been there at one time or another.

15 Q And would you point out for the Examiner  
 16 the location of the two injection wells in question?

17 A The No. 1, it's marked by the No. 1  
 18 Torreon, would be in the northeast of the southwest quarter  
 19 section, and No. 2 is in the same quarter quarter in the  
 20 north, Unit K.

21 Q Does this plat also show all wells  
 22 within two miles of the subject well?

23 A To the best of my knowledge, it does.

24 Q And what formations are these wells  
 25 completed in?

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

1 A. The Menefee formation, primarily.  
2 Q. And you've indicated by your well symbols  
3 whether or not they're currently producing?  
4 A. Yes.  
5 Q. Does this also show the leases in the  
6 area?  
7 A. It shows Torreon's lease. The others  
8 are identified, I think, correctly, but I didn't have the  
9 information to definitely say that.  
10 Q. All right. Will you please explain to  
11 the Examiner, or identify Applicant's Exhibits Two, Three,  
12 Four, and Five?  
13 A. The ones I have aren't marked, but --  
14 Q. Those are the logs.  
15 A. The logs of the proposed injection wells  
16 1 and 2. They are density and electrical logs, which indi-  
17 cate porosity and formation resistivity and imply water  
18 saturation data.  
19 Q. Now will you refer to your diagrammatic  
20 sketches of each of the wells which are marked for identi-  
21 fication as Exhibits Six and Seven, and review the data  
22 contained thereon for Mr. Nutter?  
23 A. Okay, these are simply a diagram of  
24 the proposed injection wells. We have 4-1/2 casing set  
25 through the Menefee or 1000-foot sand, which is the lowest



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

1 of the Menefee Sands that we intend to take a look at. The  
2 sands have been perforated in the interval which we intend  
3 to inject.

4 There will be, when the -- if approved,  
5 tubing and packer run to approximately 20 feet above the  
6 producing formation and a packer set to remove any problems  
7 with pressure that we might have, and casing corrosion, and  
8 that sort of thing.

9 There also is, you can see, surface  
10 pipe set to approximately 30 feet in both casings, of 7-  
11 inch.

12 In both cases the cement was circulated  
13 to the surface in both strings of casing. The cement was  
14 circulated to the surface.

15 Q Will you now refer to what has been  
16 marked Exhibit Number Eight and at this time also discuss  
17 Exhibit Number Nine and review the data contained thereon  
18 for Mr. Nutter?

19 A They are a couple of water analyses,  
20 one from the Menefee formation, which indicates a total  
21 dissolved solids of nearly 2700 parts per million, and a  
22 similar analysis on the proposed salt water well, which is  
23 an Entrada well, that has a total dissolved solids content  
24 of nearly 15,000 parts per million.

25 As near as we can tell, there are no

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

1 potable fresh water zones in the area. We have data based  
2 on air drilling that would indicate that there is just very  
3 little there at all, and what is there is similar salinity,  
4 I think, to that reported in Exhibit Eight, I think it is,  
5 yes, approximately 2700 parts per million, which certainly  
6 wouldn't be potable water.

7 So I feel that really there is very  
8 little surface potable water to protect, if any.

9 Q Mr. Hill, are the -- have the wells in  
10 this area reached an advanced state of depletion and there-  
11 fore can be classified as stripper?

12 A Very definitely.

13 Q And how much data is currently available  
14 on the wells in this area?

15 A Very limited. There's indication in  
16 most cases that wells that appear to be abandoned on the  
17 map are in fact abandoned, but we have almost no plugging  
18 data on them.

19 Q You have reviewed scout tickets?

20 A Yes.

21 Q And Commission records?

22 A Correct.

23 Q Is Torreon prepared to report to the  
24 Commission all the information required by Commission rules  
25 and regulations if this application is approved?

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

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A. Indeed yes.

Q. And you will file all required forms with the Oil Conservation Division?

A. Yes.

Q. Now what formation is it you're going to be injecting into?

A. The Menefee.

Q. And what is the source of the water which you are proposing to inject?

A. Entrada, which is referred to on Exhibits Eight and Nine, the water analyses.

Q. What volumes are you anticipating you will inject?

A. Approximately 500 barrels a day is the hoped for injection; however, we have not tested them yet, so we really can't say.

Q. And you will be injecting at what depth?

A. Approximately 1000 feet.

Q. Now do you plan to inject under pressure?

A. Yes, we'll have surface pressure. We intend to run injectivity tests to determine fracture gradient. If past experience is any indication, we can probably go to somewhere in the neighborhood of 300 to 400 pounds surface pressure, but we will run the injectivity

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

1 tests to determine. We definitely want to stay below frac-  
2 ture pressure.

3 Q Now are you also requesting in this  
4 application an administrative procedure for expanding the  
5 water flood project?

6 A Yes, we are.

7 Q In your opinion will granting this ap-  
8 plication be in the interest of conservation and the pro-  
9 tection of correlative rights and the prevention of waste?

10 A Yes.

11 Q Were Exhibits One through Nine either  
12 prepared by you or have you reviewed them and can you testify  
13 as to their accuracy?

14 A Yes, they were.

15 MR. CARR: At this time, Mr. Examiner,  
16 we would offer Applicant's Exhibits One through Nine.

17 MR. NUTTER: Applicant's Exhibits One  
18 through Nine will be admitted in evidence.

19 MR. CARR: I think, perhaps, Mr. Nutter,  
20 at this time we also would point out that there were prob-  
21 lems getting the ad in this case in the Sandoval paper, and  
22 we're aware that there will have to be a delay in getting  
23 the order out because of that.

24 MR. NUTTER: Yes, the Sandoval County  
25 paper failed to receive the ad in time to run it, they said,

1 so it has been advertised for the January 30 Hearing, I  
2 presume, it was sent to them, anyway, so we'll have to with-  
3 hold any order on this case until after such time as we have  
4 called it again for a hearing on January 30th.

5 MR. CARR: At this time I pass Mr. Hill.

6  
7 CROSS EXAMINATION

8 BY MR. NUTTER:

9 Q Mr. Hill, now you've mentioned that you  
10 would be injecting Entrada water into the Menefee formation.  
11 I notice a marked difference in the water analyses for these  
12 two formations. Have any tests been run to determine the  
13 compatibility of Entrada water with the native water in the  
14 Menefee?

15 A No, sir, they have not. Such tests are  
16 planned and certainly if there is a compatibility problem  
17 we will seek elsewhere for our water.

18 Q Or you'll just have to treat the water --

19 A Yes.

20 Q -- to make it compatible.

21 A Yes, we will make it compatible, one  
22 way or -- get compatible water, certainly.

23 Q Uh-huh. Now --

24 A I do think -- may I interject a point?  
25 I do think that the high salinity of Entrada water may be

SALLY W. HOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409

1 of an advantage to us, provided it is compatible otherwise.

2 And incidentally, an eyeball compati-  
3 bility test, comparing the two analyses, don't reveal any  
4 problems that I can see, and I've had a -- I might further  
5 state my qualifications. I am NACE accredited corrosion  
6 engineer as well as Professional Registered Engineer, and  
7 I can't see any particular problem there, but we will test,  
8 you know, on the ground to be sure.

9 But that increased salinity of the En-  
10 trada water should be of benefit in case we do encounter  
11 some type of clay swelling. It should prevent that.

12 Q You're talking about 2000 parts per  
13 million of chlorides compared to less than 100.

14 A Yeah.

15 Q Or about 100 in the other water?

16 A Yeah, right. That should prevent any  
17 bentonitic swelling if there is such present, which we're --

18 Q Okay. Now you also mentioned that you  
19 anticipated that to get this 500 barrels of water per day  
20 into the ground you might have to go to an injection pres-  
21 sure of 300 to 400 pounds at the surface. Now the 500  
22 pounds -- 500 barrels of water you're talking about, is that  
23 for each of these two proposed injection wells?

24 A No, sir. That's --

25 Q Or for the two of them?

SALLY W. HOYD, C.S.R.

Rt. 1 Box 193-B

Santa Fe, New Mexico 87501

Phone (505) 455-7409

SALLY W. BOYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 435-7419

1 A -- total, and as Mr. Carr pointed out,  
2 it may become necessary at a later time to request an ex-  
3 pansion administratively to get that required amount of  
4 water into --

5 Q To add another well to this injection --

6 A Yes, sir, right.

7 Q -- program.

8 A 500, there's nothing magical about the  
9 500, except time, to flood it out in a reasonable time.

10 Q Now you said that you would stay below  
11 the formation fracture pressure to get this 500 barrels of  
12 water into the ground, and you didn't expect to have to ex-  
13 ceed 300 to 400 psi.

14 Now the rule of thumb that this Division  
15 follows in determining maximum injection pressures for these  
16 projects in the absence of step rate tests or formation  
17 fracture tests, is .2 of a pound per foot.

18 Now at an injection depth here of about  
19 1000 feet, we would come up with about 200 pounds. Can you  
20 start off with 200 pounds --

21 A Certainly, that's what we intend to do  
22 and from indications, from what Mr. Reynolds tells me, some  
23 of his drilling problems, it will probably accept water at  
24 less than that. We are designing the surface facilities  
25 to go to that pressure, if necessary; however, before we

1 would -- of course, in waterflooding I would be very reluc-  
2 tant to even consider going to fracture pressure, because  
3 you're cutting your own throat. You tend to channel pretty  
4 early if you do.

5 So we will stay below fracture pressure.  
6 We'll run injectivity tests to determine it.

7 Q Now, how about shallower waters than  
8 this Menefee water? Are there shallower waters out here?

9 A Not to our knowledge, sir. There are  
10 shallower oil zones than this, but according to the informa-  
11 tion that I have, and I can't testify firsthand on this,  
12 there are no potable waters in this area that would be --  
13 Mesaverde formation, I believe, is on the surface, or right  
14 at the surface, and so I think you could expect comparable  
15 salinities as soon as you got into the -- the Mesaverde  
16 group.

17 Q Now you said you didn't -- you weren't  
18 able to determine what the plugging program has been on some  
19 of these old wells that have been plugged. But you do know  
20 what the casing and cementing program is on the other wells  
21 that haven't been plugged, particularly the ones that were  
22 drilled by the operator.

23 Memorandum 377, I think it was, or 378,  
24 whatever our memorandum was, concerning injection projects,  
25 required that you submit a listing of all the wells within

SALLY W. EYD, C.S.R.

Rt. 1 Box 193-B  
Santa Fe, New Mexico 87501  
Phone (505) 455-7409



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

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a mile of these proposed injection wells, and show the casing and cementing program that was on those. You haven't done that here yet.

A I was not aware of that, I'm sorry.  
We can certainly come up --

Q Would you review that memorandum and send us the information that is required by that memorandum?

A Yes.

Q You can send that information in to us.

MR. NUTTER: Are there any other questions of this witness? He may be excused.

Do you have anything further, Mr. Carr?

MR. CARR: That's all.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 6795?

MR. SINES: I would like to request a copy of the exhibits for the USGS in Farmington.

MR. CARR: Okay, if that's all right, we will mail those to you and I'll get them out this week.

MR. NUTTER: If there is nothing further, we will continue it to the Examiner Hearing scheduled to be held at this same place at 9:00 o'clock a.m. January 30th, 1980.

(Hearing concluded.)

## REPORTER'S CERTIFICATE

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

Sally W. Boyd C.S.R.  
Sally W. Boyd, C.S.R.

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

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Examiner hearing of Case No. 6795  
heard by me on 1/16 1980.  
[Signature], Examiner  
Oil Conservation Division

CASE 6795: Application of Torreon Oil Company for a waterflood project, Sandoval County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the San Luis-Mesa Verde Oil Pool by the injection of water into the Menafee formation through its San Luis Fed. Wells Nos. 1 and 2, located in Unit K of Section 21, Township 18 South, Range 3 East. Applicant further seeks an administrative procedure for approval of additional producing and injection wells at unorthodox locations in said project.

CASE 6608: (Reopened and Readvertised)

In the matter of Case 6608 being reopened pursuant to the provisions of Order No. R-6088 which order created the Grama Ridge-Wolfcamp Pool with temporary special rules and regulations with provisions for 160-acre spacing. All interested parties may appear and show cause whether the Grama Ridge-Wolfcamp Pool is in fact an oil reservoir or a gas reservoir, and if it is an oil reservoir, show cause why the Grama Ridge-Wolfcamp Pool should not be developed on less than 160-acre spacing units.

CASE 6771: (Continued from January 3, 1980, Examiner Hearing)

Application of Getty Oil Company for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the E/2 SW/4 of Section 31, Township 24 South, Range 37 East, and the NW/4 NE/4 and NE/4 NW/4 of Section 6, Township 25 South, Range 37 East, Jalmat Gas Pool, to be dedicated to a well to be drilled at a standard location thereon.

CASE 6767: (Continued from January 3, 1980, Examiner Hearing)

Application of Alpha Twenty-One Production Company for two non-standard gas proration units, unorthodox well location, and approval of infill drilling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 40-acre non-standard proration unit comprising the NW/4 NW/4 of Section 27, Township 25 South, Range 37 East, Jalmat Gas Pool, to be dedicated to El Paso Natural Gas Company's Harrison Well No. 2, and also a 200-acre unit comprising the 3/2 N/2 and NE/4 NW/4 of said Section 27 to be dedicated to a well to be drilled at an unorthodox location 1930 feet from the North line and 560 feet from the West line of Section 27. Applicant further seeks a finding that the drilling of the latter well is necessary to effectively and efficiently drain that portion of an existing proration unit which cannot be so drained by the existing well.

CASE 6807: Application of Meadco Properties, Ltd. for an exception to Order No. R-111-A, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the casing-cementing rules of Order No. R-111-A to permit a proposed well in Unit L of Section 4, Township 21 South, Range 29 East, to be completed by setting surface casing at 550 feet and production casing at total depth and cementing both casing strings to the surface.

CASE 6808: Application of Conoco Inc. for two non-standard gas proration units and two unorthodox well locations, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 160-acre non-standard gas proration unit comprising the NW/4 of Section 24, Township 20 South, Range 37 East, Eumont Gas Pool, and also a 120-acre non-standard gas proration unit comprising the W/2 SW/4 and SE/4 of said Section 24, each of said units to be dedicated to a well to be drilled at an unorthodox location, the first being 990 feet from the North line and 330 feet from the West line of the section, and the second being 1650 feet from the South line and 330 feet from the East line.

CASE 6387: (Reopened and Readvertised)

In the matter of Case 6387 being reopened pursuant to the provisions of Order No. R-5353-E which order reclassified the North Tooto Dome-Pennsylvanian Gas Pool as an associated pool with special rules and regulations therefor. All interested parties may appear and show cause why the North Tooto Dome-Pennsylvanian Associated Pool should not be reclassified as a gas pool to be governed by statewide rules.

CASE 6809: Application of Harvey E. Yates Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the Berenbough Unit Area, comprising 1921 acres, more or less, of State and fee lands in Township 13 South, Range 36 East.

CASE 6790: (Continued from January 30, 1980, Examiner Hearing)

Application of Merrion & Bayless for gas well commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks permission to temporarily commingle certain of its Pictured Cliffs gas wells in Sections 1, 2, 3, 9, 10, and 11, Township 26 North, Range 13 West, in a common gathering system and meter the entire lease output through the purchaser's sales meter located in Unit M of said Section 7.

CASE 6784: (Continued from January 30, 1980, Examiner Hearing)

Application of Merrion & Bayless for a non-standard proration unit and an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 640-acre non-standard gas proration unit comprising the W/2 of Section 18 and the W/2 of Section 19, Township 32 North, Range 14 West, Barker Creek-Paradox Pool, to be dedicated to its Ute Well No. 7 at an unorthodox location 1685 feet from the South line and 3335 feet from the East line of said Section 19.

In the alternative, applicant seeks an order force pooling all of said Section 19 to form a standard 640-acre unit.

CASE 6795: (Continued and Readvertised)

Application of Torreon Oil Company for a waterflood project, Sandoval County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the San Luis-Mesaverde Oil Pool by the injection of water into the Menafee formation through its San Luis Fed. Wells Nos. 1 and 2, located in Unit K of Section 21, Township 18 North, Range 3 West. Applicant further seeks an administrative procedure for approval of additional producing and injection wells at unorthodox locations in said project.

CASE 6810: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending the vertical and horizontal limits of certain pools in Chaves, Eddy, and Lea Counties, New Mexico:

(a) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Fusselman production and designated as the Brunson-Fusselman Pool. The discovery well is Amoco Production Company Grizzell B Well No. 3 located in Unit H of Section 8, Township 22 South, Range 37 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM  
Section 8: NE/4

CASE 6784: (Continued from January 16, 1980, Examiner Hearing)

Application of Merrion & Rayless for a non-standard proration unit and an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 640-acre non-standard gas proration unit comprising the W/2 of Section 18 and the W/2 of Section 19, Township 32 North, Range 14 West, Barker Creek-Paradox Pool, to be dedicated to its Ute Well No. 7 at an unorthodox location 1685 feet from the South line and 3335 feet from the East line of said Section 19.

In the alternative, applicant seeks an order force pooling all of said Section 19 to form a standard 640-acre unit.

CASE 6373: (Reopened and Readvertised)

In the matter of Case 6373 being reopened pursuant to the provisions of Order No. R 5875 which order created the East High Hope-Abo Gas Pool with temporary special rules therefor providing for 320-acre spacing. All interested parties may appear and show cause why the East High Hope-Abo Gas Pool should not be developed on 160-acre spacing units.

CASE 6802: Application of Harlan Drilling Company for drilling drainholes, McKinley County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill and case a vertical hole to an approximate depth of 3200 feet in the Gallup formation from a surface location 1930 feet from the South line and 676 feet from the East line of Section 13, Township 19 North, Range 6 West, and to then drill two lateral drainholes therefrom, each to a distance of approximately 200 feet in the Gallup formation. In the event the Gallup formation is non-productive, applicant seeks authority to drill vertically to the Dakota formation at a depth of approximately 4200 feet and to then drill two 200-foot lateral drainholes.

CASE 6795: (Continued from January 16, 1980, Examiner Hearing)

Application of Torreon Oil Company for a waterflood project, Sandoval County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the San Luis-Mesaverde Oil Pool by the injection of water into the Manos formation through its San Luis Fed. Wells Nos. 1 and 2, located in Unit K of Section 21, Township 18 South, Range 3 East. Applicant further seeks an administrative procedure for approval of additional producing and injection wells at unorthodox locations in said project.

CAMPBELL AND BLACK, P.A.

LAWYERS

JACK M. CAMPBELL  
BRUCE D. BLACK  
MICHAEL B. CAMPBELL  
WILLIAM F. CARR  
PAUL R. CALDWELL

POST OFFICE BOX 2208  
JEFFERSON PLACE  
SANTA FE, NEW MEXICO 87501  
TELEPHONE (505) 999-9421

December 13, 1979

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

RECEIVED  
OIL CONSERVATION DIVISION  
SANTA FE

Re: Application of Torreon Oil Company for  
Authority to Install and Operate a Water-  
flood Project in the San Luis Mesaverde  
Pool, Sandoval County, New Mexico

Case 6795

Dear Mr. Ramey:

Enclosed in triplicate is the application of Torreon Oil  
Company in the above-referenced matter.

The applicant requests that this matter be included on the  
docket for the examiner hearing scheduled to be held on  
January 16, 1980.

Very truly yours,

*William F. Carr*

William F. Carr

WFC:lr

Enclosures

RECEIVED  
OIL CONSERVATION DIVISION  
SANTA FE  
BEFORE THE  
OIL CONSERVATION DIVISION  
NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION  
OF TORREON OIL COMPANY FOR  
AUTHORITY TO INSTALL AND OPERATE  
A WATERFLOOD PROJECT IN THE  
SAN LUIS MESAVERDE POOL,  
SANDOVAL COUNTY, NEW MEXICO.

CASE 6795

APPLICATION

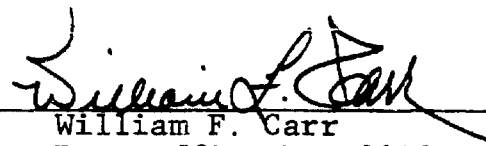
Comes now, TORREON OIL COMPANY, and applies to the Oil Conservation Division of New Mexico for authority to install and operate a waterflood project in the San Luis Mesaverde Pool, Sandoval County, New Mexico by the conversion of two wells to water injection, and for approval of administrative procedures for expansion of said waterflood project, and in support thereof would show:

1. Applicant seeks permission to institute a waterflood project in the San Luis Mesaverde Pool, by the injection of water into the Menafée formation.
2. Applicant proposes to convert to water injection its Torreon Wells No. 1 and No. 2 both in Section 21, Township 18 South, Range 3 East, N.M.P.M., Sandoval County, New Mexico.
3. That the wells in the project area are in an advanced stage of depletion.
4. That the proposed waterflood project will result in the recovery of otherwise unrecoverable hydrocarbons, thereby preventing waste and will not impair the correlative rights of others.

5. Applicant further requests that administrative procedures be authorized whereby modification or expansion of the unit including the drilling of additional injection wells and/or producing wells, and the conversion of existing wells to injection at both orthodox and unorthodox locations may be approved without further notice and hearing.

WHEREFORE, Applicant respectfully requests this matter be set for hearing before the Division's duly appointed examiner on January 16, 1980 and that after notice and hearing as required by law, the Division enter its order approving the application as prayed for.

Respectfully submitted,  
CAMPBELL AND BLACK, P.A.

By   
William F. Carr  
Post Office Box 2208  
Santa Fe, New Mexico 87501  
Attorneys for Applicant



BEFORE THE  
OIL CONSERVATION DIVISION  
NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION  
OF TORREON OIL COMPANY FOR  
AUTHORITY TO INSTALL AND OPERATE  
A WATERFLOOD PROJECT IN THE  
SAN LUIS MESAVERDE POOL,  
SANDOVAL COUNTY, NEW MEXICO.

CASE 6795

APPLICATION

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1. Applicant seeks permission to institute a waterflood project in the San Luis Mesaverde Pool, by the injection of water into the Menafée formation.
2. Applicant proposes to convert to water injection its Torreon Wells No. 1 and No. 2 both in Section 21, Township 18 South, Range 3 East, N.M.P.M., Sandoval County, New Mexico.
3. That the wells in the project area are in an advanced stage of depletion.
4. That the proposed waterflood project will result in the recovery of otherwise unrecoverable hydrocarbons, thereby preventing waste and will not impair the correlative rights of others.

5. Applicant further requests that administrative procedures be authorized whereby modification or expansion of the unit including the drilling of additional injection wells and/or producing wells, and the conversion of existing wells to injection at both orthodox and unorthodox locations may be approved without further notice and hearing.

WHEREFORE, Applicant respectfully requests this matter be set for hearing before the Division's duly appointed examiner on January 16, 1980 and that after notice and hearing as required by law, the Division enter its order approving the application as prayed for.

Respectfully submitted,  
CAMPBELL AND BLACK, P.A.

By *William F. Carr*  
William F. Carr  
Post Office Box 2208  
Santa Fe, New Mexico 87501  
Attorneys for Applicant

BEFORE THE  
OIL CONSERVATION DIVISION  
NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

IN THE MATTER OF THE APPLICATION  
OF TORREON OIL COMPANY FOR  
AUTHORITY TO INSTALL AND OPERATE  
A WATERFLOOD PROJECT IN THE  
SAN LUIS MESAVERDE POOL,  
SANDOVAL COUNTY, NEW MEXICO.

CASE 6795

APPLICATION

Comes now, TORREON OIL COMPANY, and applies to the Oil Conservation Division of New Mexico for authority to install and operate a waterflood project in the San Luis Mesaverde Pool, Sandoval County, New Mexico by the conversion of two wells to water injection, and for approval of administrative procedures for expansion of said waterflood project, and in support thereof would show:

1. Applicant seeks permission to institute a waterflood project in the San Luis Mesaverde Pool, by the injection of water into the Menafée formation.
2. Applicant proposes to convert to water injection its Torreon Wells No. 1 and No. 2 both in Section 21, Township 18 South, Range 3 East, N.M.P.M., Sandoval County, New Mexico.
3. That the wells in the project area are in an advanced stage of depletion.
4. That the proposed waterflood project will result in the recovery of otherwise unrecoverable hydrocarbons, thereby preventing waste and will not impair the correlative rights of others.

5. Applicant further requests that administrative procedures be authorized whereby modification or expansion of the unit including the drilling of additional injection wells and/or producing wells, and the conversion of existing wells to injection at both orthodox and unorthodox locations may be approved without further notice and hearing.

WHEREFORE, Applicant respectfully requests this matter be set for hearing before the Division's duly appointed examiner on January 16, 1980 and that after notice and hearing as required by law, the Division enter its order approving the application as prayed for.

Respectfully submitted,  
CAMPBELL AND BLACK, P.A.

By *William F. Carr*  
William F. Carr  
Post Office Box 2208  
Santa Fe, New Mexico 87501  
Attorneys for Applicant

ROUGH

dr/

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

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

CASE NO. 6795

Order No. R-6304

APPLICATION OF TORREON OIL COMPANY  
FOR A WATERFLOOD PROJECT, SANDOVAL  
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on February 13  
19 80, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this \_\_\_\_\_ day of \_\_\_\_\_, 19 80, 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, Torreon Oil Company, seeks authority  
to institute a waterflood project on its San Luis Lease, San Luis-  
Mesaverde Oil Pool, by the injection of water into the 1000-foot

sand of the Menefee formation through its San Luis Federal Well No. 1, located 1650 feet from the South line and 1980 feet from the West line, and its San Luis Federal Well No. 2, located 2278 feet from the South line and 2296 feet from the West line, both in Section 21, Township 18 North, Range 3 West, NMPM, Sandoval County, New Mexico.

(3) That the applicant further seeks an administrative procedure for approval of additional producing and injection wells at unorthodox locations in said project.

(3)(4) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(4)(5) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5)(6) 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 from injection, production, or plugged and abandoned wells.

(6)(7) That injection into each of the proposed injection wells should be accomplished through tubing set in a packer as close as is practicable to the upper-most perforations in the 1000-foot sand of the Menefee formation. The casing-tubing annulus in each injection well should be loaded with an inert fluid and a pressure gauge installed to facilitate detection of leakage in the casing, tubing, or packer.

(7)(8) That the injection pressurization system shall be equipped with a pressure limitation switch or other acceptable device which will limit the surface injection pressure to 200 psi unless the Division Director shall have administratively authorized a higher injection pressure after adequate showing by the applicant

that such higher pressure will not fracture the confining strata.

(8) ~~9~~ That although there are several wells in the general area which have casing and cementing programs or plugging and abandonment programs which are either known and of questionable integrity, or are unknown, it is believed that due to their depth (to the 600-foot shallow Menefee sand) or their distance from the two proposed injection wells, they will present no hazard to any underground water supply during flooding operations in the 1000-foot Menefee sand, provided however there is one well which should be further investigated, and if necessary, re-entered to ensure the integrity of its plugging program.

(9) ~~10~~ That said well is identified as the Myers King Well No. 1-X, located 1100 feet from the South line and 2475 feet from the West line of Section 21, Township 18 North, Range 3 West, NMPM, and was drilled to a reported depth of approximately 945 feet before being plugged in an unknown manner.

(10) ~~11~~ That prior to commencing its proposed water injection program, applicant should establish to the satisfaction of the Supervisor of the Aztec District Office of the Division that said well is plugged in such a manner as to prevent it from becoming an avenue of escape for waters injected into the 1000-foot Menefee sand, either by substantial documentation of the plugging operations performed on said well or by re-entering and, if necessary, re-plugging said well.

(11) ~~12~~ That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Torreon Oil Company, is hereby authorized to institute a waterflood project on its San Luis Federal Lease, San Luis-Mesaverde Oil Pool, by the injection of water into the 1000-foot sand of the Menefee formation through the following described wells in Section 21, Township 18 North, Range 3 West, NMPM, Sandoval County, New Mexico:

San Luis Federal Well No. 1, 1650 feet from South line and 1980 feet from West line

San Luis Federal Well No. 2, 2278 feet from South line and 2296 feet from West line

(2) That injection into each of said wells shall be through tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; that the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(3) That the injection pressurization system shall be equipped with a pressure limitation switch or other acceptable device which will limit the surface injection pressure to no more than 200 psi provided however, that the Division Director shall have authority to approve a higher injection pressure limitation upon an adequate showing by the operator that such higher pressure will not result in the fracturing of the confining strata.

(4) That the operator shall immediately notify the supervisor of the Division's Aztec district office of the failure of the tubing or packer in any of the injection wells, the leakage of water or oil from <sup>or</sup> around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(5) That the subject waterflood project is hereby designated the Torreon San Luis Mesaverde Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Division Rules and Regulations.

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 704 and 1120 of the Division Rules and Regulations.



(7) That prior to the commencement of injection operations, the operator shall establish to the satisfaction of the Supervisor of the Aztec District Office of the Division that the Myers King Well No. 1-X, located 1100 feet from the South line and 2475 feet from the West line of Section 21, Township 18 North, Range 3 West, NMPM, is plugged in such a manner as to prevent it from becoming an avenue of escape for waters injected into the 1000-foot sand of the Menefee formation, either by substantial documentation of the plugging operations on said well or by re-entering said well and, if necessary, re-plugging the well.

(8) The Division Director is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations in the Torreon San Luis Mesaverde Waterflood Project as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 330 feet to the outer boundary of <sup>the operators leases</sup> ~~said unit~~ nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary. To obtain such approval, the ~~project~~ operator shall file proper application with the Division, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

(1) A plat showing the location of proposed well, all wells within the project area, and offset operators, locating wells which offset the project area.

(2) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, and depth.

(3) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification.

The Director may approve the proposed well if, within 20 days after receiving the application, no objection to the proposal is received. The Director may grant immediate approval, provided waivers of objection are received from all offset operators.

(8) 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.