[redacted]

CASE No.
4831

Application,

Transcripts,

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OIL CONSERVATION COMMISSION CONFERENCE ROOM
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
Wednesday, September 27, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Mobil Oil Corporation for a unit agreement, Lea County, New Mexico. Case No. 4830

and

IN THE MATTER OF:

Application of Mobil Oil Corporation for a pressure maintenance project, Lea County, New Mexico. Case No. 4831

BEFORE: Elvis A. Utz,
Examiner

TRANSCRIPT OF HEARING

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date SEPTEMBER 27, 1972 TIME: 9 A.M.

NAME	REPRESENTING	LOCATION
J. E. Sperling	Modrall, Sperling et al	Abq.
E. R. Frazier	Mobil Oil Corp.	Midland
A. L. Lankenau	Shell Oil	Midland
Jeffy A. Smith	Mobil Oil	Midland
Larry D. Leavell	Oil Devel. Co. of Texas	Roswell
[illegible]	[illegible]	[illegible]
Jack R McGraw	Coastal States	Midland Texas
Fred K Yates	Coastal States	Midland Texas
[illegible]	Independent	Roswell, N. M.
Joe D. Cook	Independent	Roswell, N. M.
Tom Kellahin	Kellahin & Fox	Santa Fe
Jack Ramsey	Sinclair Oil	Roswell
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date SEPTEMBER 27, 1972 TIME: 9 A.M.

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NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date SEPTEMBER 27, 1972 TIME: 9 A.M.

NAME	REPRESENTING	LOCATION

MR. UTZ: Case 4830.

MR. SPERLING: James E. Sperling of Modrall, Sperling, Roehl, Harris and Sisk, appearing for the applicant.

Mr. Examiner, Case 4830 and 4831 are really companion cases and in as much as the first of those cases relates to the unit agreement and formation of the unit area and the second, 4831, represents the evidence supporting the establishments of a pressure maintenance project for that area, for that reason we would like to ask that the two cases be combined for the purposes of the testimony.

MR. UTZ: Cases 4830 and 4831 will be combined for purposes of the testimony in this case and in these cases separate orders will be written on each case.

MR. HATCH: Case 4830: Application of Mobil Oil Corporation for a unit agreement, Lea County, New Mexico. Case 4831: Application of Mobil Oil Corporation for a pressure maintenance project, Lea County, New Mexico.

MR. SPERLING: For the record the same appearance for the applicant in both cases. We have two witnesses to be sworn.

MR. UTZ: Other appearances in this case? You may proceed.

E. R. FRAZIER,

was called as a witness and after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

Q Please state your name, your place of residence, your employer and the position in which you are employed.

A My name is E. R. Frazier. I am employed by Mobil Oil Corporation in Midland, Texas and I am a joint interest assistant.

Q Have you previously testified before the Commission so that your qualifications in the position in which you hold are a matter of record?

A No, sir, I have not.

Q Give us a very brief re[illegible]e of your background and experience qualifying you for the position which you hold and the testimony which you are about to give.

A I graduated from the University of Texas in 1950 with a B.S. in petroleum engineering. I worked in various engineering capacities with Mobil Oil Corporation until 1967 at which time I came into the position I now have as joint interest assistant.

MR. SPERLING: Are the witness' qualifications acceptable?

MR. UTZ: Yes, they are.

Q (By Mr. Sperling) Mr. Frazier, your testimony, I understand, relates primarily to the unit agreement which is the subject of the application in Case Number

4830; is that correct?

A That's true.

Q Would you please identify what has been marked as Exhibit 1 in Case 4830 and tell us what that is?

A Exhibit 1 is a copy of the unit agreement of the North Vacuum-Abo Unit. The unit agreement is for the unitization of the Abo formation only and there interval being unitized to describe in Section 2U Page 3 of the unit agreement. Exhibit A in the unit agreement is a map of the Unit area showing the unit outline and the tract numbers.

Q As of the present time, Mr. Frazier, what is the extent of the sign up of the interest owners within the designated Unit area as shown on the map you have referred to?

A As of September the 26th, yesterday, we had 99.08 per cent of the working interest owners signed in this Unit area.

Q Do you have tabulations which would indicate the extent of the sign up by tract number?

A Yes, sir. Exhibit 2 is a list of the tracts showing the per cent of the working interest signed in each tract.

MR. UTZ: Sir, is that an exhibit shown in the back of your unit agreement?

MR. SPERLING: I believe it is just inside the cover of this.

Q (By Mr. Sperling) The exhibit to which you have just referred is by tract and tract number and showing the participation in the unit production of that particular tract and the interest owners percentage sign up is in the third column on the right; is that correct?

A That's correct.

Q What is the situation with reference to Tract 16, that is the last tract shown?

A Tract 16 does not have any of the working interest sign it. There is none signed in 16.

Q But the total percentage interest signed does represent 99.08 per cent?

A That's correct.

Q What is the nature of the basic royalty or mineral interest ownership under the Unit area?

A The State of New Mexico has all of the mineral interest ownership in this unit.

Q Have you consulted with the Commissioner of Public Lands concerning the formation of the unit and the unit agreement?

A Yes, sir. In Exhibit 3 is a letter from the Commissioner of Public Lands Office from the Director of Oil and Gas Department indicating they had reviewed

this agreement and are in agreement with its contents.

Q Under the terms of the unit agreement as of this time, have all of the tracts in the unit had sufficient working interest ownership approval to qualify?

A All tracts have sufficient working interest owners approval to qualify except Tract 3 and 16. Tract 3 has 50 per cent sign up. However, Marathon is the operator of that tract and they have not signed the joinder and as we mention it, Tract 16 has no sign ups, so actually as far as the sign up goes those two tracts would be the only ones that could not qualify. However, if you notice Tract 1 there -- if Tract 3 does not qualify then Tract 1 would be disqualified because it would not be a contiguous tract. So, with that in mind as of now all tracts would qualify as working interest owner sufficient approval except Tract 1, 3 and 16.

Q Are there any particularly unique provisions contained in the unit agreement, that is, those not ordinarily found in agreements approved by the Commissioner of Public Lands?

A No, sir.

Q You stated that unit agreement had been submitted and that Exhibit 3 indicated the conditional acceptance of the unit agreement by the Commissioner's office subject

to the order of this Commission and the other conditions as reflected in Exhibit 3. What is the course of the form of the agreement?

A The course of the form was a form that was sent to us at our request from Mr. Graham of the Oil and Gas Department of the New Mexico State Lands Office.

Q I believe it is on Page 20 of the unit agreement, Mr. Frazier, there is a provision for the ipso facto termination of the unit agreement if requirements have not been met by October 1st, 1972. What is the situation with regard to that provision?

A Mobil has requested approval from the working interest owners to extend this termination date for six months as provided for in the agreement. Working interest owners with 94.76 per cent have approved this extension which will extend the ipso facto termination date to April 1, 1973.

Q Do you have anything further to add?

A Pending approval of this Commission and the State Public Lands Office, we anticipate making this unit effective on November 1, 1972.

Q Anything further?

A No, sir.

MR. SPERLING: I will offer Exhibits 1 through 3 in Case 4830.

MR. UTZ: Without objection Exhibit 1 through 3 will be entered into the record of this case.

Any questions of the witness? You may be excused.

A. J. HANKINSON,

was called as a witness and after being duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. SPERLING:

Q Please state your name and your place of residence, your employer and the position in which you are employed.

A My name is A. J. Hankinson, Junior. I reside at 2201 Huntington, Midland, Texas. I am employed by Mobil Oil Corporation as an associate engineer.

Q Have you on any previous occasion testified before the Commission so that your qualifications as petroleum engineer are a matter of record?

A No, sir, I have not.

Q Please give us a brief resume of your educational background and your experience background in this field.

A I graduated from the University of Oklahoma in 1951 with a B.S. in petroleum engineering. I have worked in various engineering capacities, field reservoir economics groups since that time and I have attended, oh, a number of courses offered at the universities and

also at a field research laboratory concerning reservoir engineering.

Q Is the Unit area which is the subject of the application in 4830 and Case 4831 an area for which you have prime responsibility from an engineering standpoint?

A Yes, sir. The company assigns responsibilities by area and I am called a project engineer for this particular area.

Q In that capacity you are thoroughly familiar with the Unit area and the wells within the Unit area and their respective characteristics and particularly the Abo reservoir underlying the area?

A Yes, sir, I am.

Q Have you prepared or had prepared under your supervision or direction certain exhibits in support of the application for the establishment of the pressure maintenance project which is the subject of this application?

A Yes, sir, I did.

Q Would you now please refer to exhibit marked Number 1 in this case and explain what it is?

A Exhibit Number 1 is a map of the multi-reservoir Vacuum Pool showing all wells within a two-mile radius of the proposed Unit area. It identifies the unit outline. It identifies each producing well by

producing horizon using a color code as shown on the lower left side under column called Legend.

Q From the Legend it appears that it certainly is a multi-reservoir pool.

A Yes, sir, it is. One of the later exhibits will help to clarify the Unit area by deleting some of the other reservoirs that are not directly concerned with the application.

Q Would you give us a brief history of the Abo Pool which is the subject of this application?

A Well, first the Abo Pool is located near the town of Buckeye about 25 miles northwest of Hobbs in Lea County. The first well completed in the pool was Mobil's Bridges-State Number 112 for flowing potential of approximately 312 barrels a day on June 15, 1966. The reservoir produces by solution gas drive. There is no evidence of water encroachment. The original pressure was approximately 3230 and 30 psi. Oil gravity is 36 degrees API and is a dark green in color.

Q Would you describe the reservoir characteristics that your studies have revealed to be present in the Abo?

A The North Vacuum Abo Pool has two oil productive reservoirs. The shallower reservoir, which we designate as "Abo", occurs at an average depth of 8600 feet. The deeper reservoir, herein designated the "Lower Abo",

occurs at an average depth of 9300 feet and is separated from the 8600 foot "Abo" by a zone of dense anhydritic dolomite. Production from the "Lower Abo" reservoir is present in only the southeastern corner of the proposed North Vacuum Abo Unit area. That is down here in Section 25 at the very southeast corner of Section 26.

Q That is represented by the color code which appears to be sort of dark gray in color?

A Yes, sir. Really, the red designates the "Abo" and the pencil or black the "Lower Abo". About in the middle of that legend is the color that designates the "Lower Abo".

Q Would you please refer to what has been marked as Exhibit Number 2 and explain that exhibit?

A Exhibit 2 is a structure map contoured on top of the Abo pay. In addition to that we have shown porosity limits to the north and to the south.

Q Do you have a type log which indicates the Abo structure datum upon which the contour lines are drawn?

A Yes, sir, we do. Exhibit 3 is a cross-section and Exhibit 4 is the pipe log and all of these three pieces of geologic information go to find the Abo reservoir. 3 is a cross-section. I might comment on Exhibit 3. This cross-section begins, if you will notice the little

legend underneath there, from A to A-A'. If you look on your structure map there you can perhaps see the wells a little bit better, but it begins at Pennzoil's Rock Island State Number 1 in the upper left-hand corner and goes down across the top of the structure down to the other A' point ending in Texaco State in Number 6. The significance of the cross-section is that we show porosity limits at one end. We go into a good reservoir pay qualities. Red color on each log is the porosity above 6 per cent and then the porosity deteriorates at the other end showing the limit that has been marked as porosity pinch out from A-A'. Exhibit Number 4 is the pipe log of Mobil's Bridges-State Well Number 126. The unit interval is defined as that portion of the Abo horizon between 8300 and ten feet to 9070 feet subsurface. Our Abo pressure maintenance project will be restricted to the red interval or the Abo oil reservoir which is found essentially in 8600 feet. You might note here that the Abo structural datum and the point used in preparation of the structure map is shown on this log as about 8525 and it is identified as Abo Structual Datum top of Abo. The reservoir is a back-reef deposit of anhydritic dolomite with interbedded shales. As you can see, the gross reservoir is rather thick, approximately 550 feet. It is capped with

dense anhydritic dolomite. Productive interval within this gross section is limited almost entirely to the top 100 feet. The porosity within this producing interval has good continuity which is shown on the previous exhibit on the cross-section. I might point out that although the Abo reservoir does show structural closure it is a stratigraphic trap. The porosity pinches out to the north and to the south. We believe its boundaries are being defined on the west by porosity deterioration. However, the eastern limits of the field haven't been defined yet.

Q Exhibit Number 4 which is the type log does show the Lower Abo to which you previously referred. What is the nature or characteristic of the interval which separates the Abo from the Lower Abo?

A It is about 500 feet of dense anhydritic dolomite. No permeability and very, very low porosity. It effectively separates these two reservoirs except where they have been comingled and well bores were on C.C. approval.

Q Would you refer to what has been marked as Exhibit 5?

A Exhibit 5 is a map of the proposed Unit showing Abo wells. Again we have used the color code red for Abo or the zone we are considering in our pressure maintenance program. It shows the proposed injection wells which have penetrated the Abo and wells completed

in the Lower Abo. I think you can see that the Lower Abo is confined to the very southeast part of the project area. The wells that are marked with a dark pencil or sort of a black are Lower Abo completions.

Q You mention an Abo penetration. That is indicated according to the legend on Exhibit 5 with an X. That doesn't necessarily mean completed in the Lower Abo or I mean in the Abo, just that it has penetrated it; is that it?

A That's correct, sir. For example, in Section 23 Well 151 shows to be an Abo penetration. This particular well is a Morrow gas completion at a lower depth. I would like to go ahead a little bit and describe this map a little further. The proposed unit covers 5840 acres and includes 67 active producing wells. The cumulative oil and gas production as of July 1 was 3,646,660 barrels and 4,555,903 MCF respectively. The current oil producing rate from the Unit area is approximately 3000 barrels per day and the average gas-oil ratio was 1511 cubic feet per barrel. Water production is insignificant in the Unit area and amounts to about 5.4 per cent of total fluids produced.

Q With reference to that testimony just given, refer to Exhibits 6 and 7.

A Exhibits 6 and 7 are production histories of the North

Abo Unit in tabular and graphic form.

Q Exhibit 8?

A Exhibit 8 is a summary of tests of oil wells which will be involved as either producers and/or injectors in the proposed Unit area.

Q What does the column on the extreme right of Exhibit 8 mean? It is a zone designation and in addition to Abo there are references to other zones. Would you explain that?

A Yes, sir, I certainly will. For example, the first well which is Mobil's Bridges-State 172 had a test on July 5 of this year for 122 oil, no water, and the gas-oil ratio of 918 cubic feet per barrel. It was completed in the Abo zone. We might refer down four wells to the Bridges-State 130. This well is proposed as an injector under our plan. However, at the present time it is completed in the Morrow gas. The test on July 8 of this year was 1731 MCF of gas daily and nine barrels of natural gas liquids.

Q So the zone designation indicates the formation from which the well which is identified by number is presently producing?

A Yes, sir.

Q With reference to the unit and the unit interval vertical limits of the unit, can you give us approximately the

reservoir characteristics of that interval which I believe is somewhere around 21 feet?

A Yes, sir. The effective pay thickness is estimated at 21 feet with the average porosity characteristics of 11.3 per cent and average permeability of 2mb. The oil-in-place is calculated to be 57,000,000 barrels. This is original oil-in-place. We predict an ultimate primary recovery of 9.4 million barrels or approximately 16 and a half per cent of the oil-in-place. Total recovery, primary plus fluid injection, is estimated to be 22.8 million barrels or 40 per cent of the original oil-in-place.

Q So the establishment of the pressure maintenance project has the effect of increasing the ultimate primary recovery substantially?

A Yes, sir, we think it will.

Q Would you please describe for us what Mobil's plans are for the effecting of the pressure maintenance project mechanically and engineering wise?

A Mobil plans to initiate a 5-spot alternating gas-water injection program which we call AGWIP for short in the following manner: The first step would be to inject Ogallala water in all of the wells shown as proposed injectors on Exhibit 5 for a period of approximately six months. Total water injection will amount to about

13,600 barrels per day or about 400 barrels per well per day. The injection pressure is expected to be 3500 psi. This is because of the low permeability of the Abo reservoir. The Ogallala water will be obtained from Mobil water supply wells on the Bridges-State Lease under permits issued by the State Engineering authorizing usage of 1200 acre-feet per year or up to 25,500 barrels per day. All of the above is Step 1.

The second phase will be to convert one half of the injectors to gas injection for four to six month intervals. Gas injection will amount to about 5,000,000 cubic feet per day or about 300 MCF per well per day at 4500 psi well-head pressure. The gas source will be exhaust from the engines driving the compressors which have been stripped of residual oxygen and water. The exhaust gas will then consist of about 89 per cent Nitrogen and 11 per cent CO_2. It is our plan to inject one reservoir barrel of gas for each barrel of water injected.

The third phase would be the remaining 17 or one half of the injectors would be converted to gas injection. This cycling procedure would be continued for about ten years or so long as the procedure appeared economically attractive. Maximum pressures anticipated later in the project life are 4500 psi for water and 5500 psi for gas.

dearnley, meier & mc cormick
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At this point I would like to point out that all of the above constitute our plan of operation. However, there are field conditions that might warrant a change from the ratio of injectors on gas and the injectors of the water at any time from the value of the quoted of 50-50. After we complete our cycling phase of gas-water, all injectors will be placed on straight water injection. Produced water may be reinjected into the Abo when the volume becomes significant. However, our initial plan is to inject it in our Vacuum Grayburg-San Andres flood project which is a shallower flood project. We are also considering injection of a propane slug which would amount to about 5,000 to 10,000 barrels per well in certain areas of the project. We have not completed evaluation of this yet and we need to firm up the availability of our supply and the firm cost. It seems that the cost of our supply goes up weekly with contacting these people, so we are going to really have to work that part out.

We mentioned the water that we are going to inject. Exhibit 9 and Exhibit 10 are analyses of the Ogallala water and produced Abo water. They are on these little pages.

Q Will you intend to use separate systems for the alternating injection of gas and water or is it the same

system or what is your plan with regard to that?

A We plan to use separate systems. A system for gas only and a system for water only which will be cement lined on surface to prevent corrosion activities. Our well-heads will be replaced with high-pressure equipment. Relief valves will be installed on the casing annulus to protect the casing down hole.

Q Would you refer to Exhibit 11?

A Exhibit 11 is a package of 34 well sketches showing the existing wellbore conditions of all proposed injectors. A summary sheet listing the operator, lease name, and well number and section of the proration unit is attached at the front of the package. Injection in a typical well will be through corrosion resistant lined tubing. By this we mean probably an epoxy using mechanical packer or packers to isolate the Abo from other producing horizons. The upper and lower packers, if needed, will be set within 50 feet of the top and the bottom of the Abo perforations respectively.

Q Is the typical injector completion diagramatic sketch shown on Exhibit 12 a single well?

A Yes, sir. This is our proposed typical single well injection completion.

Q What about Exhibit 13?

A 13 is an example of the typical dual well completion

isolating the Abo from any other producing horizons.

Q Now, within the Unit area and in view of the multiple completions that you have previously referred to, do you have any somewhat unique or peculiar areas within the Unit area which require or may require special consideration?

A Yes, sir, we do. If I may refer to the Exhibit Number 5, this is the project map showing the Abo and the Lower Abo. Six of the producers and injectors which are Bridges-State Numbers 108, 109, 119, 120, 124 and 147 may be the subject of a future hearing if it appears feasible to conduct a salvage fluid injection operation in the Upper Penn and Middle Penn reservoirs.

Q Would you locate the wells to which you have referred to generally?

A I certainly will. If you will start at the bottom in Section 25 you will see Well 108 as being location 25F and keep going straight north and you will see 108, 109 and north to 119 and north to 120 and west to 124 and then northeast to 147. The Upper Penn Pool is a rather limited feature through here and we haven't completed our appraisal as to whether it has any fluid injection potential or not. However, this will be done before any conversant operations are attempted and the necessary approval solicited.

Q You are in the course of making a study of that reservoir now also; is that correct?

A Yes, sir, I should have that finished within 30 days.

Q Mr. Hankinson, would you please give us a summary now of what Mobil is seeking by the application in these two cases?

A Firstly, we would like approval of the North Vacuum Unit Agreement and secondly approval of the plan of operation to inject fluids into the Abo formation through the 34 wells described in Exhibit Number 11. Number 3, an allowable formula to be fixed by the Commission to provide for a maximum daily unit allowable not to exceed the number of 80-acre proration units times the daily top unit allowable set for the wells in the North Vacuum Abo Pool. Such unit allowable may be produced from any well or wells on the project area in any proportion. Four, establishment of an administrative procedure whereby the Commission may authorize the completion of a second producing well on the 80-acre proration units at unorthodox locations within said Unit, providing such wells are located no closer than 1,780 feet from the outer unit boundary nor closer than ten feet to any quarter-quarter section or subdivision inner boundary.

MR. UTZ: Do you have this written down in the form

of an exhibit?

THE WITNESS: Yes, sir.

A In explanation of this the 80-acre spacing that the wells are drilled on which results in 160 acre five-spot pattern areas coupled with a low permeability of the reservoir, its effect on project response may make it necessary to infill drill the producers in certain areas of the project. Item five, the project area be fixed as the total area within the boundaries of the said North Vacuum Abo Unit as described in this application, with further provision that the project area may be expanded administratively by the Commission upon satisfactory meeting condition set forth by the Commission.

Q (By Mr. Sperling) Do you have anything further to add at this time, Mr. Hankinson?

A One thing I would like to mention is that we are going to load the casing annulus on the injection wells with treated fresh water. We will have relief valves and a pressure gauge installed on these casing annuluses to protect down hole from casing rupture and to inform us if and when remedial action should be needed. Materials will be used in the dual well installations to protect from corrosion. We have located some expensive corrosion-resistant material to apply to this 300 to 500 foot

interval between the deeper producing string that would be between the two packers to reduce or eliminate the effects of any corrosion.

Q That is an outer coating for the tube?

A It is a special metal alloy to resist corrosion.

Q Anything further?

A No, sir.

MR. SPERLING: At this time I would like to offer Exhibits 1 through 13.

MR. UTZ: Without objection Exhibits 1 through 13 will be entered into the record of this case.

CROSS-EXAMINATION

BY MR. UTZ:

Q Mr. Hankinson, in regard to your multi-pool completions, is it your request here that they go approved as injector producers? You are going to continue to produce the other zones other than the Abo?

A At this time we would probably plan to continue production especially on the Morrow. We would have a Morrow gas injector-producer combination. We do plan to have the small area outlined here evaluated and any amended hearings necessary to determine whether we go the dual injector or the dual or eliminate the other zone.

Q Does Exhibit 8 list all of the projection wells that you are proposing here?

A It lists all wells to be used as producers or injectors within the project area. Exhibit 11 lists only the injection wells. Exhibit 8 was a well-test summary.

Q In other words, the front page of Exhibit 11 lists only the injection wells?

A Yes, sir.

Q For all three phases?

A Yes, sir.

Q That would be a total of 34 wells?

A Yes, sir.

Q I got your first phase in pretty good shape. The initial water injection will be in all wells?

A Yes, sir.

Q Would you give me the second phase again?

A We plan to convert about half the wells to gas injection.

Q Approximately half?

A Approximately half and operate these wells on gas injection for approximately six months and then convert the remaining half of the wells to gas injection. These wells had been on water and then the cycling process of gas-water-gas-water would be continued at six month intervals for a period of about ten years or perhaps longer if our operating conditions warranted additional cycling. Following that we would go on a striaght water injection.

Q In regard to your unit, are you unitizing only the Abo?
A Yes, sir.
Q At this time?
A That's correct.
Q If you later come in for secondary recovery in the Penn or any other formation, you will have a separate hearing for it?
A Yes, sir.
Q Would this include a unitization, you think, or not?
A I think the pool is so limited that it would probably be 100 per cent Mobil's project in the other reservoir. It is a very narrow feature in there and it is questionable whether the project will be there or not. Some good evidence of water production in these other reservoirs and we haven't completed my study of the efficiency or the natural recovery mechanism yet.
Q At this time you are asking only for the Abo?
A Abo only, sir. The Lower Abo is not part of it.
Q Does the list of injection wells on 11 include your multiple completion wells, too?
A Yes, sir, it does.

MR. UTZ: Are there other questions of the witness?

CROSS-EXAMINATION

BY MR. HATCH:

Q You speak of Abo producers and Lower Abo producers.

There is no distinction. Those are not separately designated pools, are they?

A No, sir.

Q Your injection would be only into the Abo and not into the Lower Abo?

A That's correct, only the marked red above that dense interval.

MR. SPERLING: Is the vertical interval indicated in the unit agreement as a unit interval as well as shown on the -- There is nothing right now to prevent a second well on an 80-acre well but it is only the location that is the problem or am I wrong about the rules of the pool?

MR. HATCH: I did review those rules once but I have forgotten them. I believe the rules say that the Abo wells will be drilled in the center of the northwest and southeast of each governmental quarter section.

What pool are we speaking of here?

THE WITNESS: North Vacuum Abo.

MR. UTZ: Are there any other questions? The witness may be excused.

Statements in the case? The case will be taken under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, MARCIA HUGHES, Court Reporter, in and for the County of Bernalillo, State of New Mexico do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

COURT REPORTER

dearnley, meier & mc cormick
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I N D E X

E X H I B I T S

	ADMITTED	OFFERED
Exhibits 1 - 3 (4830)	9	8
Exhibits 1 - 13 (4831)	24	24

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
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I. R. TRUJILLO
CHAIRMAN
LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER
STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

December 3, 1973

Re: CASE NO. 4831
ORDER NO. R-4430-A
Applicant:
Mobil Oil Corporation

Mr. James E. Sperling
Modrall, Sperling, Roehl & Harris
and Sisk
Attorneys at Law
Post Office Box 2168
Albuquerque, New Mexico 87103

Dear Sir:

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

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other State Engineer Office

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

APPLICATION OF MOBIL OIL CORPORATION FOR A PRESSURE MAINTENANCE PROJECT, LEA COUNTY, NEW MEXICO.

CASE NO. 4831
Order No. R-4430-A

NUNC PRO TUNC

BY THE COMMISSION:

It appearing to the Commission that due to clerical error Order No. R-4430, dated October 27, 1972, does not correctly state the intended order of the Commission,

IT IS THEREFORE ORDERED:

(1) That Rule 10 on Page 6 of Order No. R-4430 should read in its entirety as follows:

> "RULE 10. The Secretary-Director of the Commission is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of the North Vacuum-Abo Unit Area as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 460 feet to the outer boundary of 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 Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:"

(2) That this order shall be effective nunc pro tunc as of October 27, 1972.

DONE at Santa Fe, New Mexico, this 30th day of November, 1973.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

I. R. TRUJILLO, Chairman

ALEX J. ARMIJO, Member

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

S

dr/

OIL CONSERVATION COMMISSION

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

GOVERNOR
BRUCE KING
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY – DIRECTOR

October 30, 1972

Re: Case No. 4831
Order No. R-4430
Applicant:
Mobil Oil Corporation

Mr. James E. Sperling
Modrall, Seymour, Sperling,
Roehl & Harris
Attorneys at Law
Public Service Building
Post Office Box 2168
Albuquerque, New Mexico 87103

Dear Sir:

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

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC

Other State Engineer Office

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4831
Order No. R-4430

APPLICATION OF MOBIL OIL
CORPORATION FOR A PRESSURE
MAINTENANCE PROJECT, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 27, 1972, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 27th day of October, 1972, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Mobil Oil Corporation, seeks authority to institute a pressure maintenance project in the North Vacuum-Abo Pool in its North Vacuum-Abo Unit Area, Lea County, New Mexico, by the injection of gas and water into the Abo formation through 34 wells located in Sections 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, and 27, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico.

(3) That the applicant further seeks the designation of the project area and the promulgation of special rules and regulations governing said project including a provision for administrative approval for unorthodox locations for injection wells and producing wells.

(4) That initially the project area should comprise only the following-described area:

LEA COUNTY, NEW MEXICO

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 2: SW/4
Section 3: SE/4
Section 10: E/2
Section 11: S/2
Section 12: NE/4 and S/2
Section 13: N/2 and SW/4
Section 14: All
Section 15: E/2
Section 22: E/2
Sections 23 and 24: All
Section 25: NW/4 and N/2 NE/4
Section 26: All
Section 27: E/2

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 19: W/2 NW/4

(5) That a pressure maintenance project, designated the Mobil North Vacuum-Abo Pressure Maintenance Project, comprising the above-described area is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(6) That an administrative procedure should be established whereby said project area may be expanded for good cause shown and whereby additional injection wells and producing wells at orthodox and unorthodox locations in the project area may be approved without the necessity of notice and hearing.

(7) That special rules and regulations for the operation of the Mobil North Vacuum-Abo Pressure Maintenance Project should be promulgated and, for operational convenience, such rules should provide certain flexibility in authorizing the production of the project allowable from any well or wells in the project area in any proportion, provided that no well in the project area which directly or diagonally offsets a well on another lease producing from the same common source of supply should be allowed to produce in excess of top unit allowable for the North Vacuum-Abo Pool until such time as the well has experienced a substantial response to water injection. When such a response has occurred, the well should be permitted to produce up to two times top unit allowable for the North Vacuum-Abo Pool. Production of such well at a higher rate should be authorized only after notice and hearing.

IT IS THEREFORE ORDERED:

(1) That the applicant, Mobil Oil Corporation, is hereby authorized to institute a pressure maintenance project in the

North Vacuum-Abo Pool in its North Vacuum-Abo Unit Area, Lea County, New Mexico, to be designated the Mobil North Vacuum Abo Pressure Maintenance Project, by the injection of gas and water into the Abo formation, through the following-described wells:

LEA COUNTY, NEW MEXICO
TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

OPERATOR	LEASE	WELL NO.	SECTION	LOCATION
Mobil	Bridges State	172	3	P
Mobil	" "	166	10	H
Shell	State "VH"	1	10	P
Mobil	Bridges State	130 (a dual completion)	15	H
Mobil	" "	144	15	P
Mobil	State "J"	9	22	H
Shell	Location	to be drilled	22	P
Mobil	Bridges State	157	27	H
Mobil	" "	145	27	P
Mobil	" "	148	11	N
Mobil	" "	173	14	F
Mobil	" "	171	14	N
Mobil	" "	151 (a dual completion)	23	F
Mobil	State "KK"	1	23	N
Mobil	Bridges State	118	26	F
Mobil	" "	153	26	N
Mobil	" "	140	11	P
Mobil	" "	125 (a dual completion)	14	H
Mobil	" "	124 (a dual completion)	14	P
Mobil	" "	128	23	H
Mobil	" "	117 (a dual completion)	23	P
Mobil	" "	96	26	H
Mobil	" "	95 (a dual completion)	26	P
Mobil	" "	150	12	N
Mobil	" "	147 (a dual completion)	13	F
Mobil	" "	120 (a dual completion)	13	N
Mobil	" "	119 (a triple completion)	24	F
Mobil	" "	109 (a triple completion)	24	N
Mobil	" "	108 (a triple completion)	25	F
Mobil	" "	161	12	H
Mobil	" "	159	12	P
Mobil	" "	169	13	H
Pennzoil	Mobil State	1	24	H
Shell	State "C"	2	24	P

(2) That Special Rules and Regulations governing the operation of the Mobil North Vacuum-Abo Pressure Maintenance Project, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
MOBIL NORTH VACUUM-ABO PRESSURE MAINTENANCE PROJECT

RULE 1. The project area of the Mobil North Vacuum-Abo Pressure Maintenance Project, hereinafter referred to as the Project, shall comprise the area described as follows:

LEA COUNTY, NEW MEXICO
TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
Section 2: SW/4
Section 3: SE/4
Section 10: E/2
Section 11: S/2
Section 12; NE/4 and S/2
Section 13: N/2 and SW/4
Section 14: All
Section 15: E/2
Section 22: E/2
Sections 23 and 24: All
Section 25: NW/4 and N/2 NE/4
Section 26: All
Section 27: E/2

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM
Section 19: W/2 NW/4

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio or are shut-in for any of the following reasons: pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3 which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6,

below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on an 80-acre proration unit shall be top unit allowable for the North Vacuum-Abo Pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3, shall be determined by a 24-hour test at a stabilized rate of production, which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Commission Rule 502 I (a) and the limiting gas-oil ratio (2,000 to 1) for the pool shall be waived during such tests. The project operator shall notify all operators offsetting the well, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of the offsetting operators and the Commission, if they so desire.

RULE 7. The basic allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the pool, whichever is less. Wells capable of producing more than top unit allowable may also receive transfer allowable, provided however, that no producing well in the project area which directly or diagonally offsets a well on another lease producing from the same common source of supply shall receive an allowable or produce in excess of two times top unit allowable for the pool. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the pool.

RULE 8. Each month the project operator shall submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total project allowable based upon the pool's depth bracket allowable and the market demand percentage factor in effect. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.

RULE 9. The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells in the Project in any proportion except that no well in the Project which directly or diagonally offsets a well on another lease producing from the same common source of supply shall produce in excess of two times top unit allowable for the pool.

RULE 10. The Secretary-Director of the Commission is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of the North Vacuum-Abo Unit Area as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 660 feet to the outer boundary of 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 Commission, 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 Secretary-Director may approve the proposed well if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

BRUCE KING, Chairman

ALEX J. ARMIJO, Member

S E A L

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

dr/

Docket No. 21-72

DOCKET: EXAMINER HEARING - WEDNESDAY - SEPTEMBER 27, 1972

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

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 4829: Application of Coastal States Gas Producing Company for a special depth bracket allowable, Lea and Roosevelt Counties, New Mexico. Applicant, in the above-styled cause, seeks the establishment of a special depth bracket allowable greater than the present allowable for the Vada-Pennsylvanian Pool, Lea and Roosevelt Counties, New Mexico.

CASE 4830: Application of Mobil Oil Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the North Vacuum-Abo Unit Area comprising 5,680 acres, more or less, of Federal, State, and Fee lands in Township 17 South, Ranges 34 and 35 East, Lea County, New Mexico.

CASE 4831: Application of Mobil Oil Corporation for a pressure maintenance project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project in its North Vacuum-Abo Unit Area by the injection of fluid into the North Vacuum-Abo Pool through 34 wells located in Township 17 South, Ranges 34 and 35 East, Lea County, New Mexico.

Applicant further seeks a procedure whereby additional producing and injection wells may be approved without notice and hearing.

CASE 4832: Application of Pennzoil Company for pool reclassification, special pool rules, and a non-standard proration unit, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks the reclassification of the Northwest Todd-San Andres Gas Pool to an associated pool for the production of gas and oil and the promulgation of special rules therefor including provisions for the classification of oil and gas wells, oil and gas spacing, and a gas-oil ratio limitation of 10,000 cubic feet of gas per barrel of oil.

Applicant further seeks approval of an 80-acre non-standard oil proration unit in the subject pool comprising the NW/4 SW/4 and the SW/4 NW/4 of Section 8, Township 7 South, Range 35 East to be dedicated to its Superior State "Com" Well No. 1 located in Unit L of said Section 8.

CASE 4833: Application of Tesoro Petroleum Corporation for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests underlying the E/2 of Section 28, Township 20 South, Range 26 East, Eddy County, New Mexico, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South line and from 1160

(Case 4833 continued from page 1)

to 1200 feet from the East line of said Section 28, adjacent to the Springs-Upper Pennsylvanian Gas Pool.

Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4834: Application of Read & Stevens, Inc. for an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a Devonian test well at an unorthodox location 1200 feet from the South line and 660 feet from the East line of Section 2, Township 14 South, Range 37 East, Lea County, New Mexico, adjacent to the King-Devonian Pool.

CASE 4835: Application of Texas Oil & Gas Corporation for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Pennsylvanian formation underlying the S/2 of Section 13, Township 22 South, Range 26 East, South Carlsbad Field area, Eddy County, New Mexico, to be dedicated to a well to be drilled 1980 feet from the South and East lines of said Section 13. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4836: Application of Michael P. Grace II and Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicants, in the above-styled cause, seek an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the S/2 of Section 24, Township 22 South, Range 26 East, South Carlsbad Field area, Eddy County, New Mexico, to be dedicated to a well to be drilled at an orthodox location for said unit. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision for said well.

CASE 4819: (Continued from the September 13, 1972, Examiner Hearing)
Application of D. L. Hannifin for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in and under the S/2 of Section 24, Township 22 South, Range 26 East, South Carlsbad Field, Eddy County, New Mexico, to be dedicated to a well to be drilled 1980 feet from the South and East lines of said Section 24. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

Case 4831
Rec. 9-29-72
Heard 9-27-72

1. Grant Mobil permission to convert 34 wells listed ~~on front~~ ~~Exh. 11~~ to injection wells. page 3

2. Rule 701 as revised 8-30-72 ~~shall~~ be effective.

3. R-2421 allows second well on ~~160~~ Ac unit.

4. Approve as requested ~~on Summary~~

PRODUCTION HISTORY
NO. VACUUM ABO UNIT

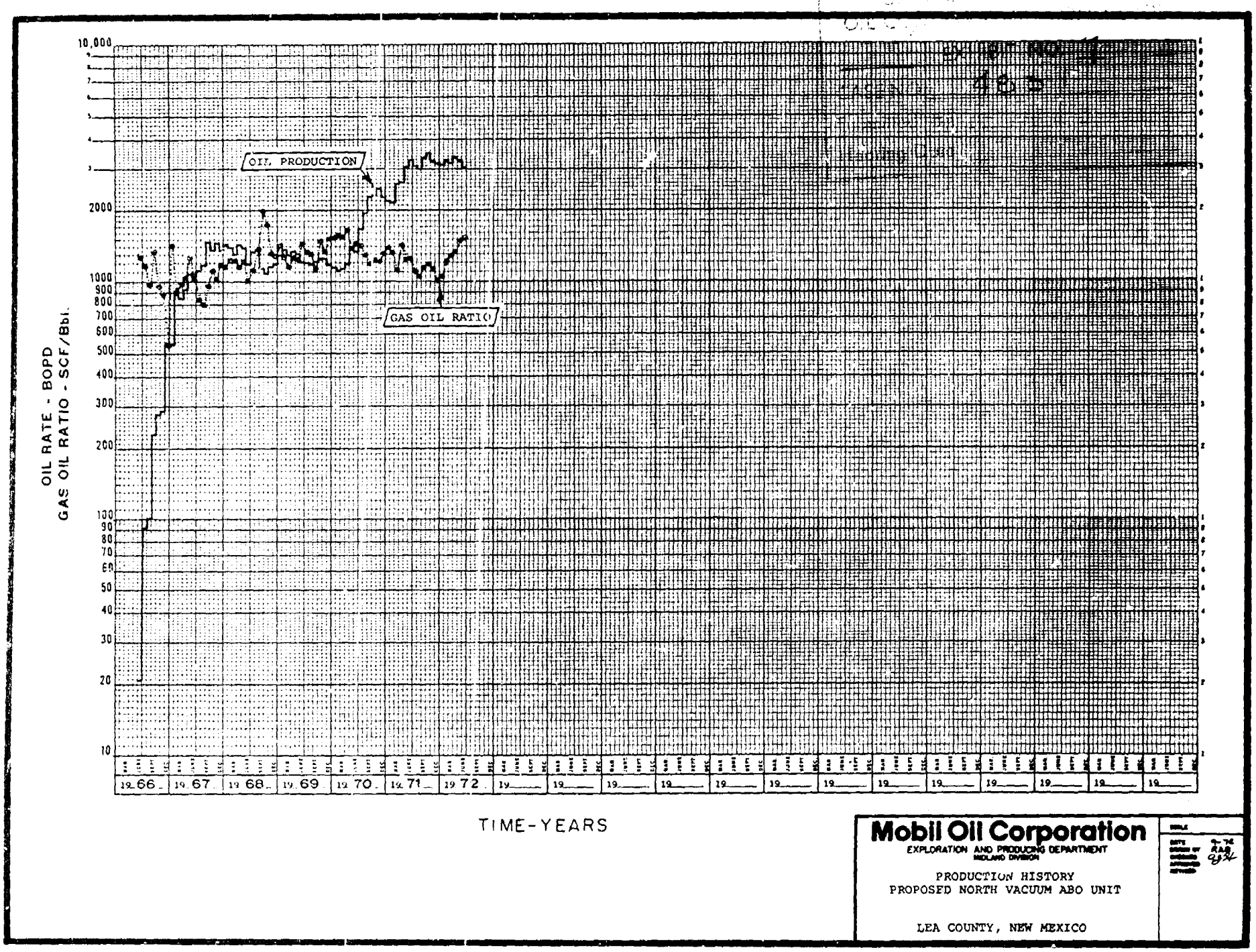
DATE	OIL DAILY	OIL MONTHLY	OIL CUMULATIVE	GAS MONTHLY	GAS CUMULATIVE	GOR
1966						
June	21	640	640	2,685	2,685	1260
July	94	2,921	3,561	6,340	9,025	1163
Aug.	101	3,122	6,683	5,658	14,683	975
Sept.	229	6,880	13,563	13,463	28,146	1334
Oct.	268	8,316	21,879	10,921	39,067	953
Nov.	286	8,582	30,461	10,234	49,301	882
Dec.	544	16,866	47,327	10,082	59,383	548
Annual Production		47,327		59,383		
1967						
Jan.	555	17,215	64,542	24,156	83,539	1403
Feb.	881	24,660	89,202	22,612	106,151	916
Mar.	851	26,366	115,568	25,945	132,096	984
Apr.	937	28,098	143,666	29,455	161,551	1048
May	1,082	33,549	177,215	42,695	204,246	1272
June	1,052	31,550	208,765	32,044	236,290	1015
July	1,122	34,779	243,544	29,260	265,550	841
Aug.	1,191	36,921	280,465	29,637	295,187	802
Sept.	1,478	44,337	324,802	42,858	338,045	966
Oct.	1,354	41,971	366,773	46,375	384,420	1104
Nov.	1,461	43,836	410,609	44,791	429,211	1021
Dec.	1,369	42,431	453,040	50,001	479,212	1178
Annual Production		405,713		419,829		
1968						
Jan.	1,417	43,916	496,956	50,722	529,934	1154
Feb.	1,396	39,079	536,035	47,366	577,300	1212
Mar.	1,297	40,197	576,232	48,644	625,944	1210
Apr.	1,417	42,513	618,745	49,526	675,470	1164
May	1,388	43,017	661,762	52,284	727,754	1215
June	1,188	35,654	697,416	35,802	763,556	1004
July	1,318	40,849	738,265	45,535	809,091	1114
Aug.	1,354	41,964	780,229	57,349	866,440	1366
Sept.	1,132	33,975	814,204	66,956	933,396	1970
Oct.	1,084	33,594	847,798	58,077	991,473	1728
Nov.	1,151	34,524	882,322	45,093	1,036,566	1306
Dec.	1,168	36,208	918,530	46,011	1,082,577	1270
Annual Production		465,490		603,365		

PRODUCTION HISTORY
NO. VACUUM ABO UNIT

DATE	OIL DAILY	OIL MONTHLY	OIL CUMULATIVE	GAS MONTHLY	GAS CUMULATIVE	GOR
1969						
Jan.	1,287	39,886	958,416	56,986	1,139,563	1428
Feb.	1,370	38,355	996,771	48,510	1,188,073	1264
Mar.	1,297	40,209	1,036,980	46,860	1,234,933	1165
Apr.	1,334	40,024	1,077,004	50,799	1,285,732	1269
May	1,300	40,286	1,117,290	50,180	1,335,912	1245
June	1,210	36,297	1,153,587	52,866	1,388,778	1456
July	1,201	37,233	1,190,820	49,163	1,437,941	1320
Aug.	1,186	36,782	1,227,602	48,037	1,485,978	1306
Sept.	1,208	36,247	1,263,849	41,250	1,527,228	1138
Oct.	1,230	38,130	1,301,979	56,414	1,583,642	1479
Nov.	1,229	36,878	1,338,857	50,062	1,633,704	1357
Dec.	1,193	36,978	1,375,835	55,692	1,689,396	1506
Annual Production		457,305		606,819		
1970						
Jan.	1,142	35,414	1,411,249	53,544	1,742,940	1511
Feb.	1,119	31,330	1,442,579	49,019	1,791,959	1564
Mar.	1,137	35,260	1,477,839	54,062	1,846,021	1533
Apr.	1,192	35,760	1,513,599	58,151	1,904,172	1626
May	1,344	41,667	1,555,266	57,574	1,961,746	1381
June	1,332	39,973	1,595,239	56,793	2,018,539	1420
July	1,683	52,183	1,647,422	73,570	2,092,109	1409
Aug.	1,974	61,203	1,708,625	79,139	2,171,248	1293
Sept.	2,296	68,878	1,777,503	82,104	2,253,352	1192
Oct.	2,327	72,138	1,849,641	89,666	2,343,018	1242
Nov.	2,446	73,379	1,923,020	89,171	2,432,189	1215
Dec.	2,274	70,485	1,993,505	91,874	2,524,063	1303
Annual Production		617,670		834,667		
1971						
Jan.	2,198	68,138	2,061,643	94,897	2,618,960	1392
Feb.	2,156	60,366	2,122,009	79,529	2,698,489	1317
Mar.	2,597	80,497	2,202,506	89,380	2,787,869	1110
Apr.	2,625	78,751	2,281,257	111,161	2,899,030	1411
May	3,026	93,799	2,375,056	114,224	3,013,254	1217
June	3,264	97,913	2,472,969	121,304	3,134,558	1238
July	3,087	95,706	2,568,675	105,299	3,239,857	1100
Aug.	2,980	92,386	2,661,061	97,244	3,337,101	1052
Sept.	3,373	101,186	2,762,247	116,977	3,454,078	1156
Oct.	3,463	107,353	2,869,600	125,672	3,579,750	1170
Nov.	3,259	97,785	2,967,385	111,357	3,691,107	1138
Dec.	3,179	98,563	3,065,948	98,916	3,790,023	1003
Annual Production		1,072,443		1,265,960		

PRODUCTION HISTORY
NO. VACUUM ABO UNIT

DATE	OIL			GAS		GOR
	DAILY	MONTHLY	CUMULATIVE	MONTHLY	CUMULATIVE	
1972						
Jan.	3,116	96,589	3,162,537	102,285	3,892,308	1058
Feb.	3,286	92,001	3,254,538	112,348	4,004,656	1221
Mar.	3,181	98,607	3,353,145	127,910	4,132,566	1297
Apr.	3,372	101,157	3,454,302	134,542	4,267,108	1330
May	3,253	100,830	3,555,132	150,509	4,417,617	1492
June	3,051	91,528	3,646,660	138,286	4,555,903	1511
Production To Date		580,712		765,880		



Mobil Oil Corporation
EXPLORATION AND PRODUCING DEPARTMENT
MIDLAND DIVISION

PRODUCTION HISTORY
PROPOSED NORTH VACUUM ABO UNIT

LEA COUNTY, NEW MEXICO

SCALE

DATE 9-76
DRAWN BY RAB
CHECKED
APPROVED
REVISED

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 8
CASE NO. 4831
Submitted by
Hearing Date

P. Gonzales

WELL TEST SUMMARY
PROPOSED NORTH VACUUM ABO UNIT

Operator	Lease	Well No.	Date of Test	Test Results Oil	Wtr	GOR	Zone
Mobil	Bridges State	172	7- 9-72	122	0	918	Abo
	"	166	8- 3-72	73	28	1753	Abo
Shell	State "VH"	1	6- 72	130	0	704	Abo
Mobil	Bridges State	130	7- 8-72	9	(1731 MCF)		Morrow Gas
	"	144	6-19-72	66	1	1666	Abo
	State "J"	9	7- 9-72	37	0	81	Abo
Shell	Location	Location		-	-	-	-
Mobil	Bridges State	157	5- 6-72	108	3	1611	Abo
	"	145	7-17-72	30	1	4933	Abo
	"	148	7-16-72	53	13	1566	Abo
	"	173	7- 9-72	55	1	1672	Abo
	"	171	7-16-72	69	1	1550	Abo
	"	151	7-15-72	1	(270 MCF)		Morrow Gas
	State "KK"	1	7-12-72	64	0	1453	Abo
	Bridges State	118	5- 7-72	104	0	2471	Abo
	"	153	6-23-72	38	0	2157	Abo
	"	140	7-18-72	95	1	1242	Abo
	"	125	7- 9-72	88	(4996 MCF)		Morrow Gas
	"	124	6- 1-72	33	9	1030	Abo
	"		7-14-72	26	3	4576	Upper Penn
	"	128	6-19-72	42	4	119	Abo
	"	117	6-14-72	82	0	1878	Abo
	"		7-11-72	23	13	4000	Wolfcamp
	"	96	7-18-72	62	7	1967	Abo
	"	95	7-19-72	13	1	1307	Abo
	"		7-19-72	30	0	1433	Wolfcamp
	"	150	7-17-72	73	12	1739	Abo
	"	147	7- 8-72	32	1	2125	Abo
	"		7-15-72	44	8	3409	Middle Penn
	"	120	7-19-72	21	1	2857	Abo
	"		7-10-72	131	63	1068	Upper Penn
	"	119	7- 4-72	85	0	3705	Abo
	"		7-16-72	50	0	2840	Upper Penn
	"		7-16-72	26	0	2692	Wolfcamp
	"	109	7-15-72	56	1	2910	Abo
	"		7-19-72	35	23	2000	Upper Penn
	"		7-19-72	37	25	2540	Wolfcamp
	"	108	7- 7-72	21	5	1428	Abo
	"		7-15-72	101	30	1405	Upper Penn
	"		7- 8-72	24	7	750	Wolfcamp
	"	161	6-10-72	62	15	1402	Abo
	"	159	7-14-72	60	8	1250	Abo
	"	169	7-15-72	78	11	1500	Abo
Pennzoil	Mobil State	1	6 -72	94	0	1396	Abo
Shell	State "C"	2	6 -72	79	3	1760	Abo
Mobil	Bridges State	122	7-16-72	35	0	2000	Abo
	"	131	7-15-72	85	1	141	Abo
Shell	State "VH"	2	6 -72	65	28	1159	Abo

WELL TEST SUMMARY
PROPOSED NORTH VACUUM ABO UNIT
Page 2

Operator	Lease	Well No.	Date of Test	Test Results Oil	Wtr	GOR	Zone
Mobil	Bridges State	164	7-11-72	37	0	2108	Abo
	"	163	7-12-72	37	1	351	Abo
	State "J"	5	7-17-72	23	0	2521	Abo
	"	7	7-18-72	26	0	230	Abo
	Bridges State	143	5-24-72	23	0	1869	Abo
	"	149	5-22-72	79	2	1835	Abo
Pennzoil	Marathon State	1	6- 72	27	0	983	Abo
Mobil	Bridges State	135	7-18-72	51	0	1117	Abo
	"	170	7-10-72	47	1	148	Abo
	"	139	7-18-72	18	0	4111	Abo
	"	155	7-19-72	23	0	3782	Abo
	State "KK"	2	7-13-72	12	1	1166	Abo
	Bridges State	136	5-10-72	114	0	1219	Abo
	"	138	5- 9-72	60	0	1533	Abo
	"	162	7-17-72	42	0	547	Abo
	"	146	5- 6-72	32	1	156	Abo
	"	142	7-13-72	26	2	1692	Abo
	"	129	6-20-72	22	2	6272	Abo
	"	156	5-21-72	59	0	2830	Abo
	"	137	5-23-72	89	0	2505	Abo
	"	98	5- 2-72	19	0	1157	Abo
	"		7- 6-72	11	1	90	Lower Penn
	"		7-17-72	28	9	5250	Wolfcamp
	"	134	7-18-72	86	11	918	Abo
	"	165	7-14-72	76	1	2013	Abo
	"		7-17-72	113	1	1097	Middle Penn
	"	121	7-12-72	41	0	3536	Abo
	"		7-13-72	11	10	3000	Middle Penn
	"		7-13-72	2	1	6000	Upper Penn
	Bridges Santa Fe	1	7-15-72	26	1	38	Abo
	"		7-15-72	10	0	100	Upper Penn
	Bridges State	116	6-17-72	113	0	3168	Abo
	"		7- 1-72	27	1	5185	Wolfcamp
	"	112	7-14-72	40	13	1600	Abo
	"		7-10-72	54	55	18	Glorieta
	"		7-16-72	17	63	1882	Upper Penn
	"	160	7-19-72	40	5	1500	Abo
	"	158	8-13-72	164	2	870	Abo
	"		8-14-72	16	(1200	MCF)	Morrow Gas
	"	152	7-16-72	78	8	1846	Abo
	State "G"	4	7-15-72	30	0	1933	Abo
Mallard	State "A"	1	6- 72	33	0	2029	Abo
Mobil	Bridges State	104	7-18-72	62	8	1225	Abo
	"		7-11-72	107	45	710	Upper Penn
Mobil	State "N" Com.	1	6-23-72	88	1	1079	Abo
Pennzoil	Bridges State	1	6- 72	32	1	762	Abo
Marathon	Location	1	Drilling				

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 9
CASE NO. 4831

Martin Water Laboratories

P. O. BOX 1468 PHONE 943-3234
MONAHANS, TEXAS 79756

408 W. ILLINOIS PHONE 683-4521
MIDLAND, TEXAS 79701

RESULT OF WATER ANALYSES

LABORATORY NO. 469224
SAMPLE RECEIVED 4-29-69
RESULTS REPORTED 5-14-69

TO: Mr. I. S. Reavis
P. O. Box 633, Midland, Texas

COMPANY Mobil Oil Corporation LEASE Bridges State Vacuum
FIELD OR POOL Vacuum
SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE New Mexico
SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Supply water - taken from water supply well @ plant (make-up for produced water) .4-29
NO. 2 Supply water - taken from WSW #100 & 101 @ common header @ plant. 4-29-69
NO. 3
NO. 4
REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0002	1.0003		
pH When Sampled	7.3	6.7		
pH When Received	7.6	7.1		
Bicarbonate as HCO_3	200	171		
Supersaturation as $CaCO_3$	0	--		
Undersaturation as $CaCO_3$	-	28		
Total Hardness as $CaCO_3$	198	191		
Calcium as Ca	61	60		
Magnesium as Mg	11	10		
Sodium and/or Potassium	26	26		
Sulfate as SO_4	26	30		
Chloride as Cl	42	42		
Iron as Fe	0.0	0.0		
Barium as Ba	0	0		
Turbidity, Electric	1.9	1.3		
Color as Pt	4	6		
Total Solids, Calculated	366	339		
Temperature °F.	65	65		
Carbon Dioxide, Calculated	16	56		
Dissolved Oxygen, Winkler	2.5	0.0		
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 60° F.	17.24	19.61		
Suspended Oil				
Filtrable Solids as mg/l	0.20	0.33		
Volume Filtered, ml	3,000	4,000		
Results Reported As Milligrams Per Liter				
Additional Determinations And Remarks				

Form No. 3

By ___

Martin Water Laboratories

406 W. ILLINOIS PHONE 683-6271
MIDLAND, TEXAS 79701

10

RESULT OF WATER ANALYSES

LABORATORY NO. 871132 463-1

SAMPLE RECEIVED 8-25-71

RESULTS REPORTED 8-27-71

TO: [illegible] Midland, Texas

COMPANY Mobil Oil Corporation LEASE Bridges State

FIELD OR POOL [illegible] COUNTY Lea STATE N. M.

SECTION ___ BLOCK ___ SURVEY ___

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced (Abo) water - taken from Bridges State #166, 8-23-71

NO. 2

NO. 3

NO. 4

REMARKS: Water obtained by N. M. E. Pouland

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.1417			
pH When Sampled	5.7			
pH When Received	151			
Bicarbonate as HCO_3		36,750		
Supersaturation as $CaCO_3$		10,210		
Undersaturation as $CaCO_3$		2,709		
Total Hardness as $CaCO_3$		87,157		
Calcium as Ca		759		
Magnesium as Mg		159,791		
Sodium and/or Potassium		14.5		
Sulfate as SO_4				
Chloride as Cl		260,303		
Iron as Fe				
Barium as Ba		0.0		
Turbidity, Electric		0.044		
Color as Pt				
Total Solids, Calculated				
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide				
Resistivity, ohms/m at 77° F.				
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks ~~In comparing the above with analysis #27154, 12-5-[illegible] well 1147, we interpret sludge resulting in being typical Abo water, the water~~ to calcium sulfate scaling tendency.

By W. Reagan White, B. S.

Form No. 3

cc: Mr. H. R. Elledge, Hobbs
Mr. A. J. Alcott, Hobbs

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 11
CASE NO. 4831
Submitted by
Hearing Date

PROPOSED NORTH VACUUM ABO UNIT

LEA COUNTY, NEW MEXICO

DIAGRAMMATIC WELLBORE SKETCHES

OF

EXISTING WELLS PROPOSED

FOR

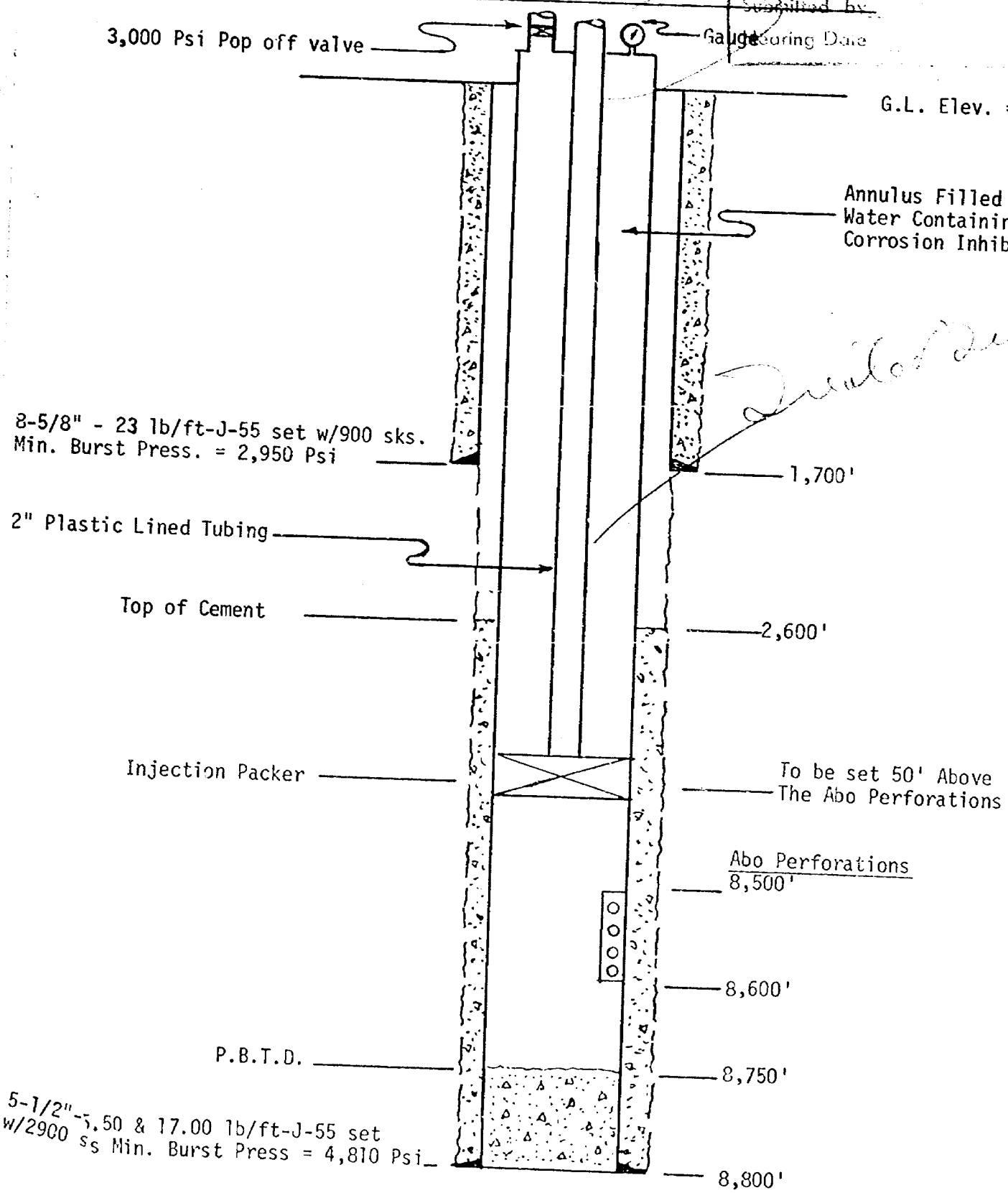
CONVERSION TO W.I.W.

IN THE

NORTH VACUUM ABO POOL

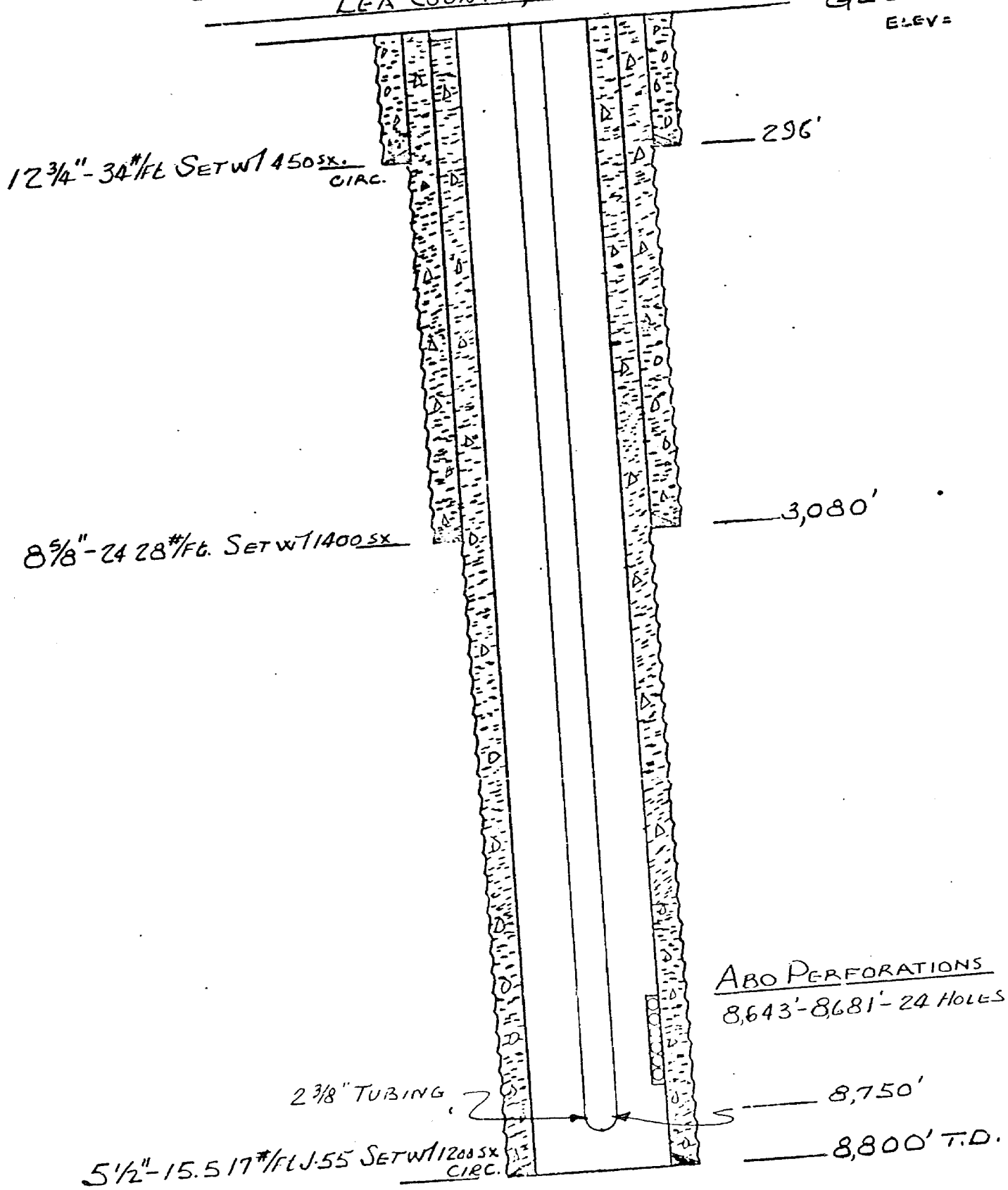
DIAGRAMMATIC WELL SKETCH
TYPICAL SINGLE WELL
NORTH VACUUM ABO UNIT
NORTH VACUUM (ABO) FIELD
LEA COUNTY, NEW MEXICO

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 12
CASE NO. 4831
Submitted by
Hearing Date



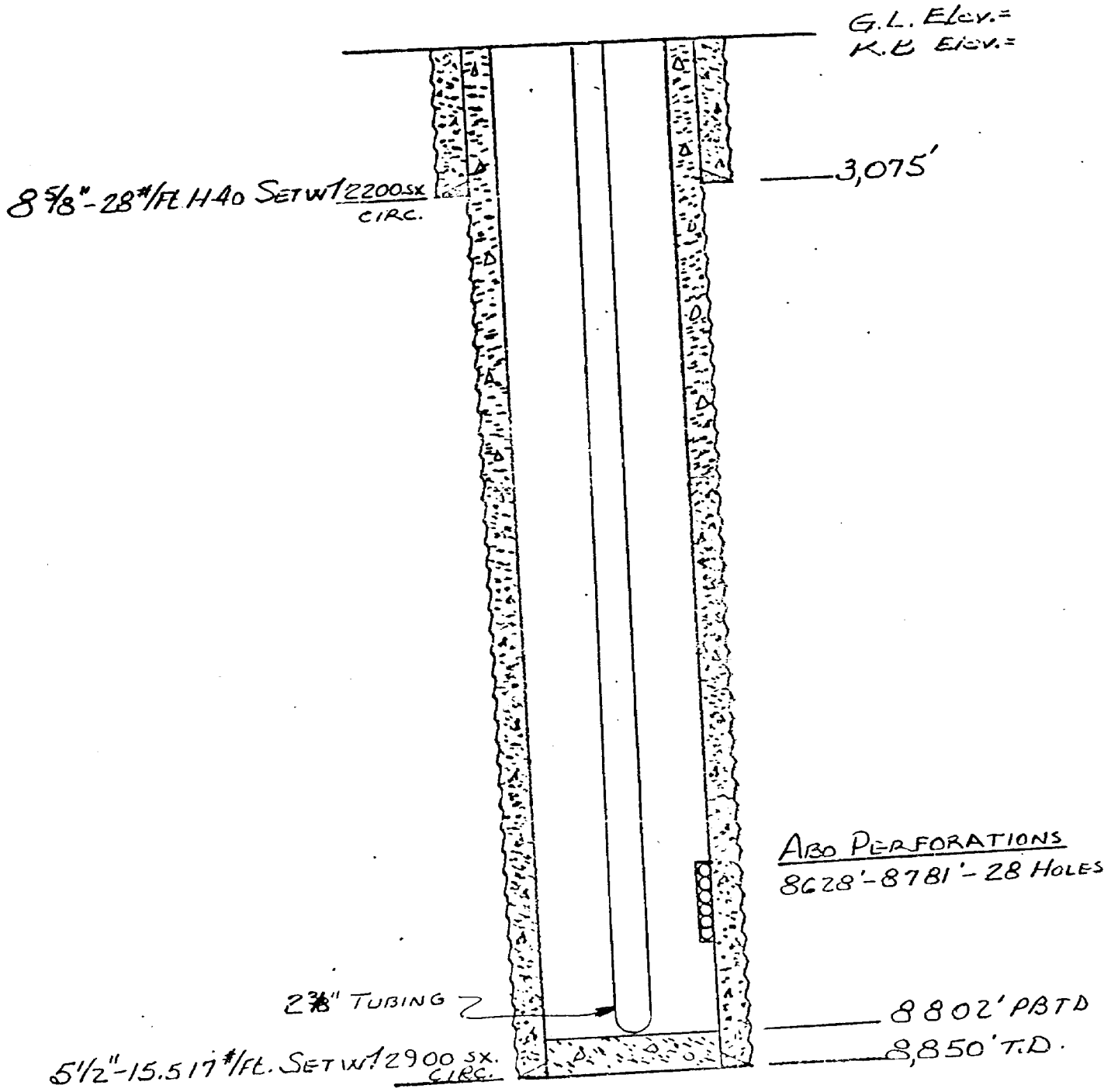
John E. Smith
9-15-72

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 172
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



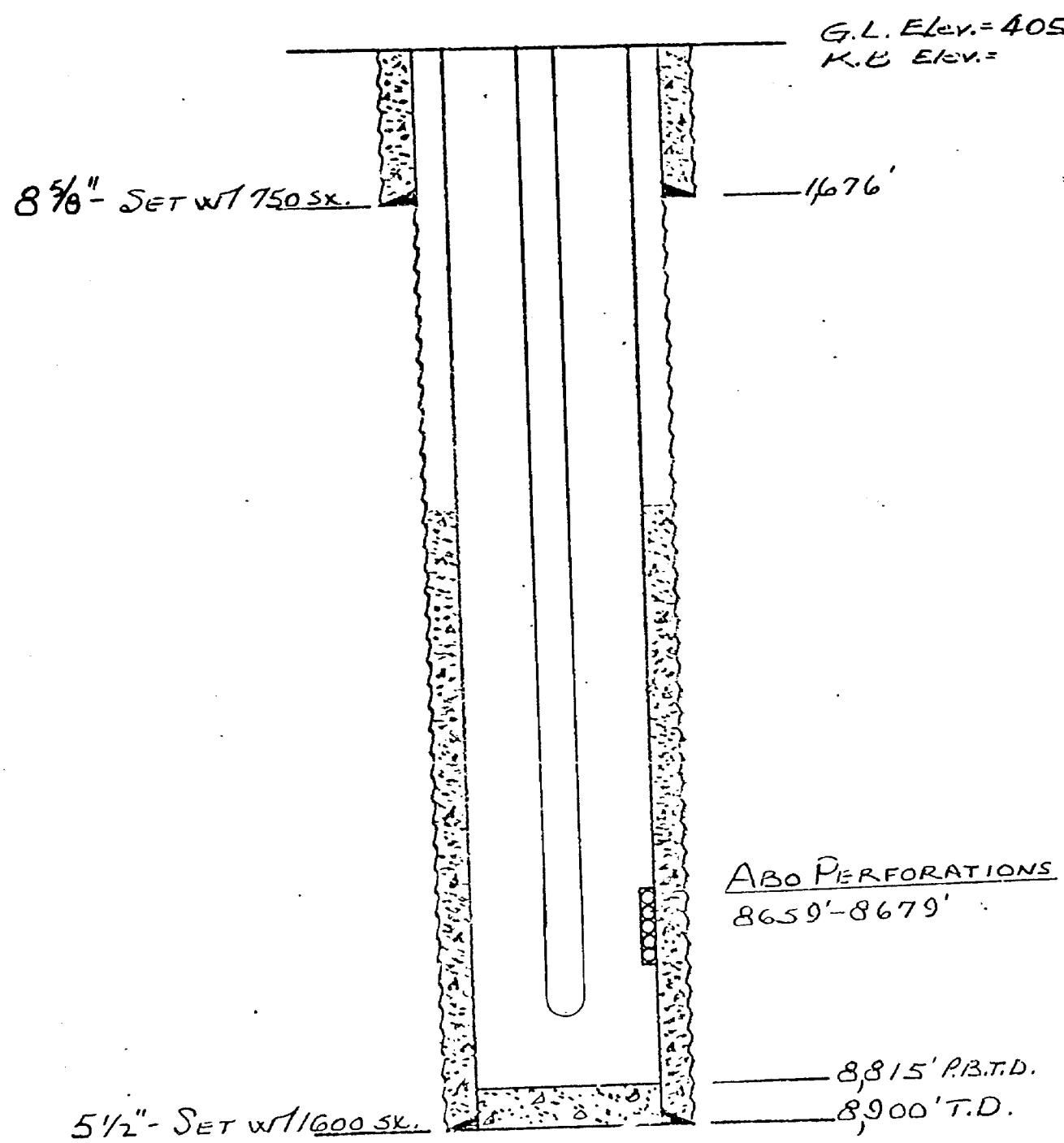
9-7-72
IEW

DIAGRAMMATIC WELL SKETCH.
BRIDGES STATE WELL NO. 166
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



9-6-72
JEW

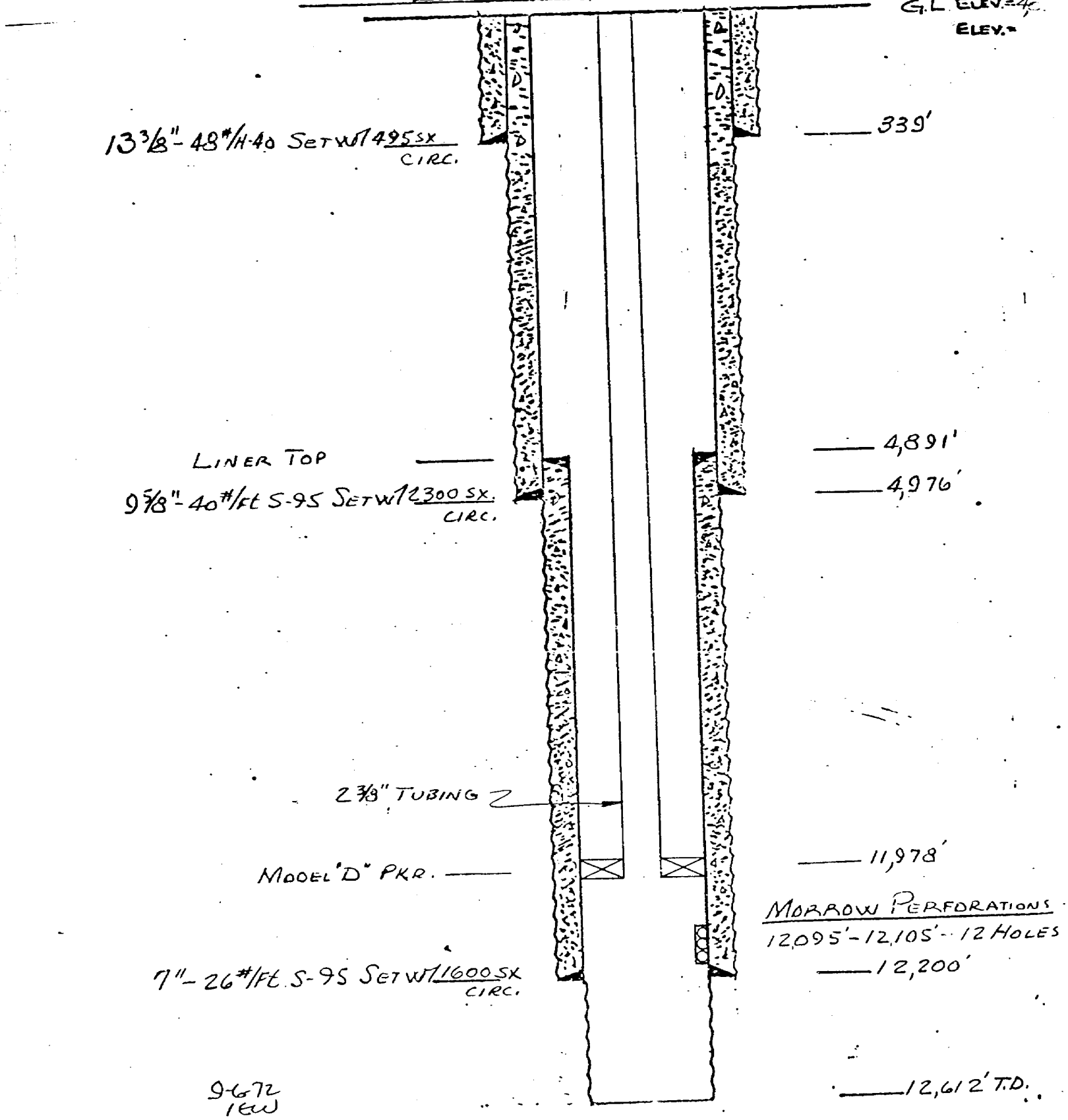
DIAGRAMMATIC WELL SKETCH
STATE "VH" WELL No. 1
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



9-8-72
IEW

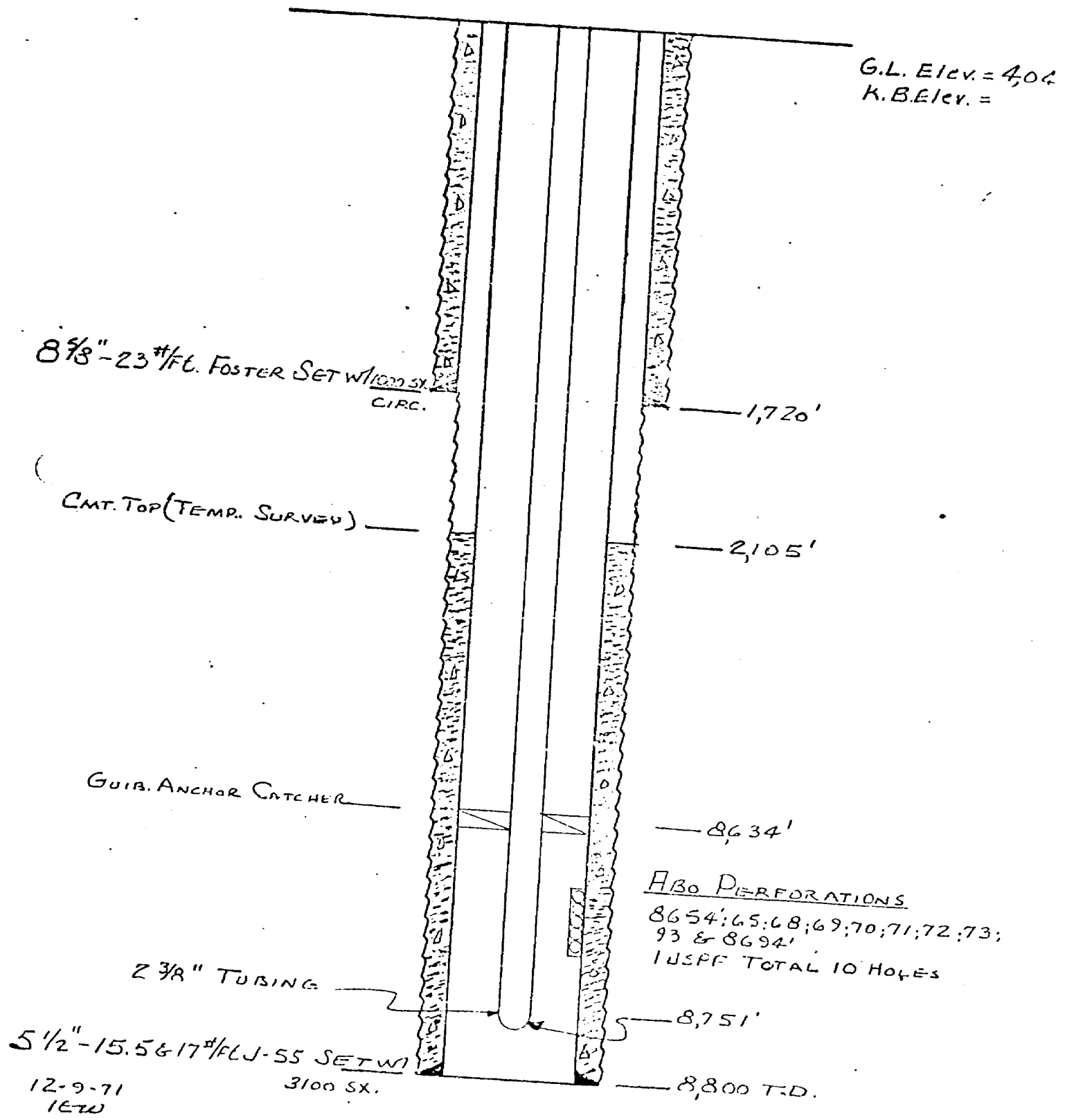
(SHELL OIL CO. WELL)

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL No. 130
NORTH VACUUM (MORROW) POOL
LEA COUNTY, NEW MEXICO



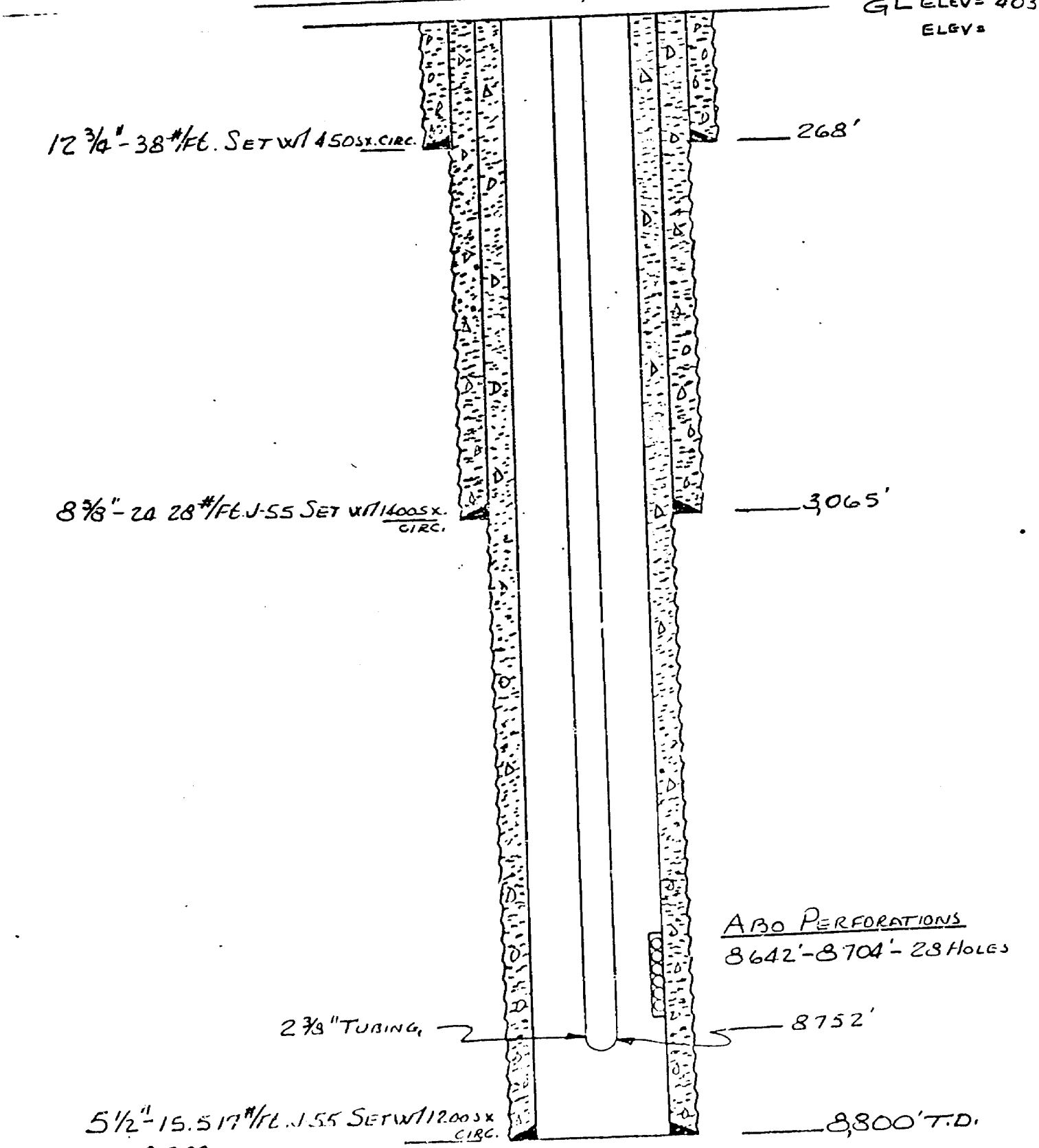
9-672
IEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL No. 144
VACUUM (ABO) NORTH FIELD
LEA COUNTY, NEW MEXICO



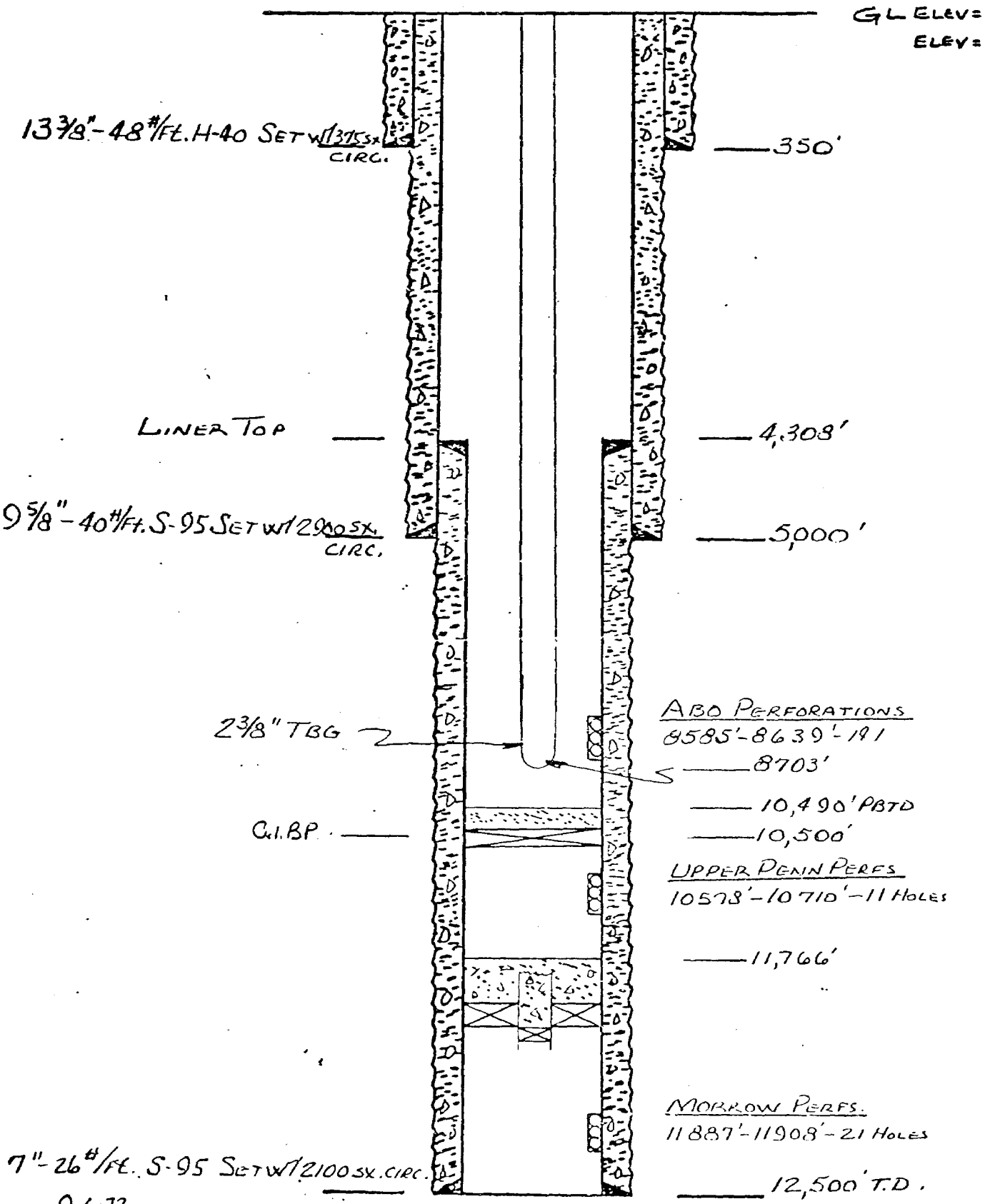
12-9-71
IEW

DIAGRAMMATIC WELL SKETCH
STATE "J" WELL NO. 9
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



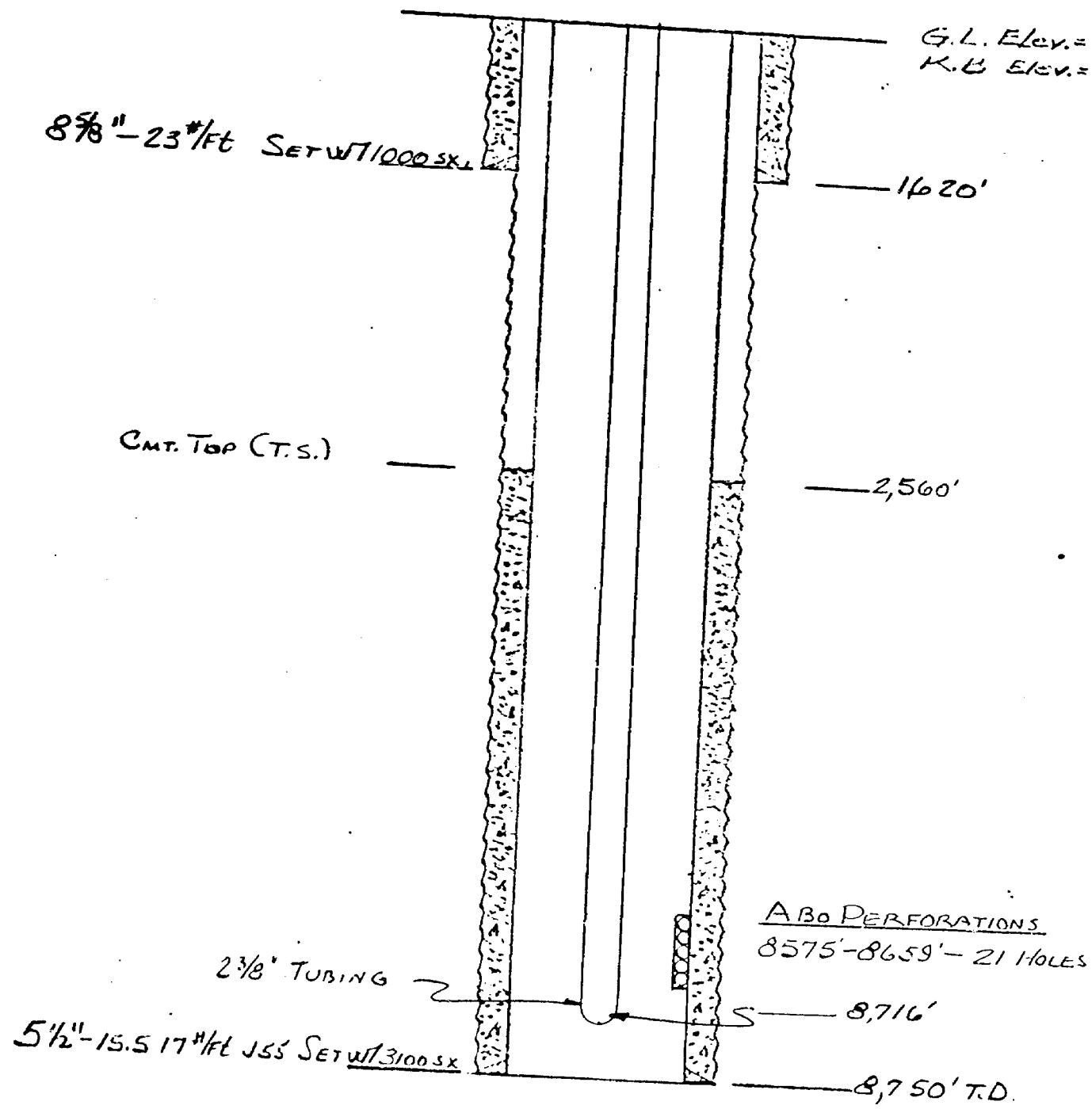
9-7-72
JGW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 157
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



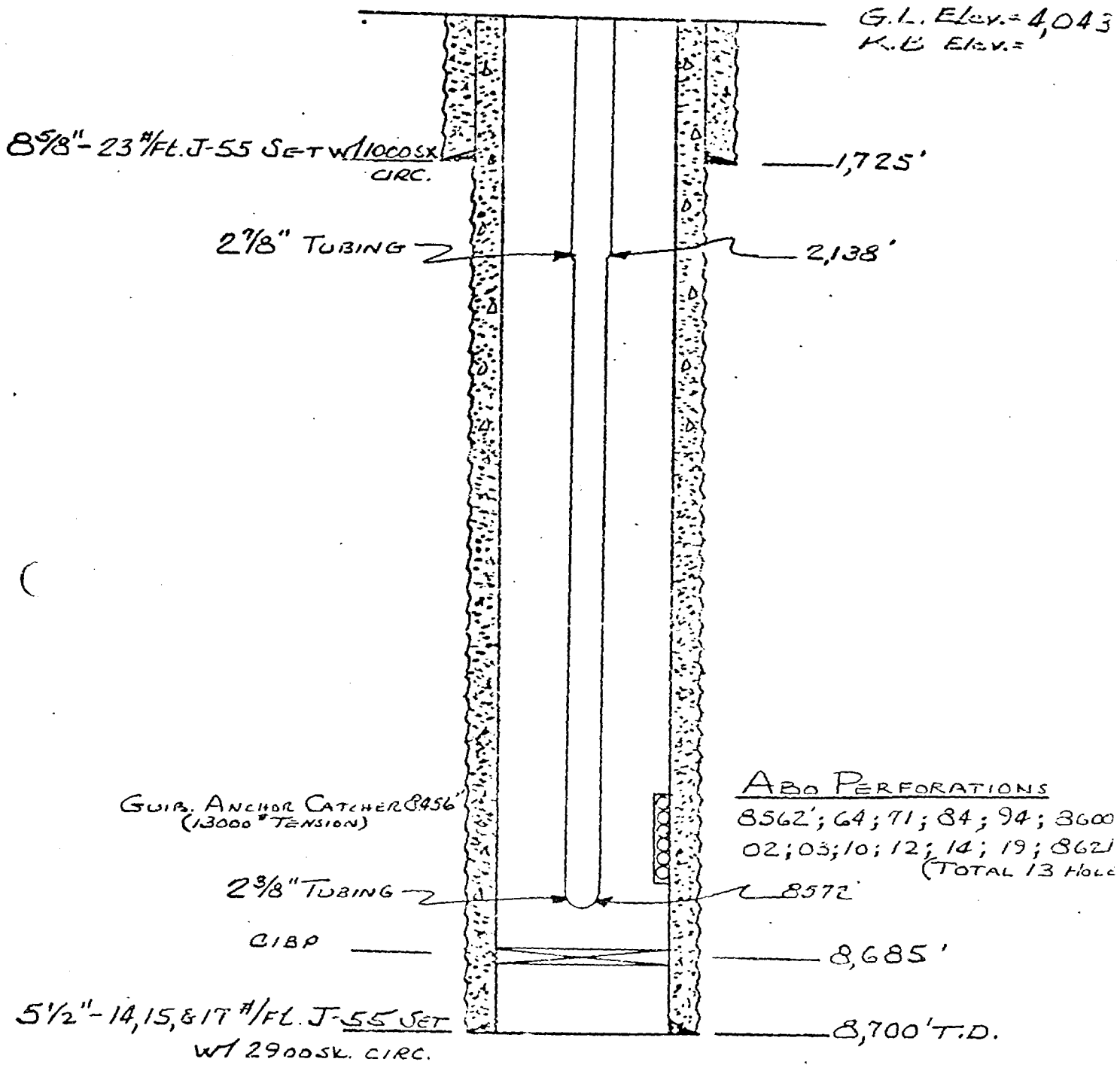
9-6-72
IEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 145
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



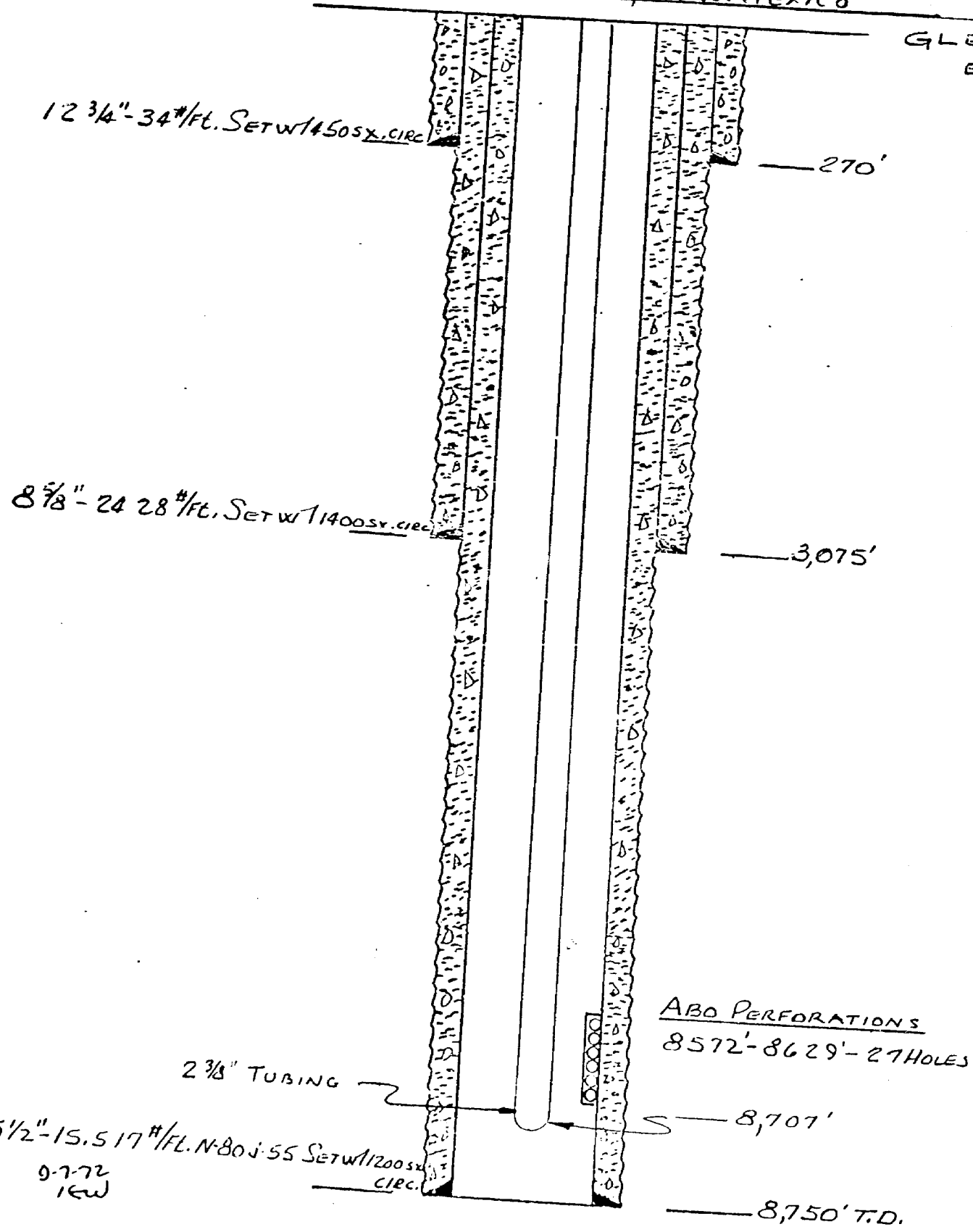
9-6-72
TEW

Diagrammatic Well Sketch
Bridges State Well No. 148
North Vacuum Abo Field
Lea County, New Mexico

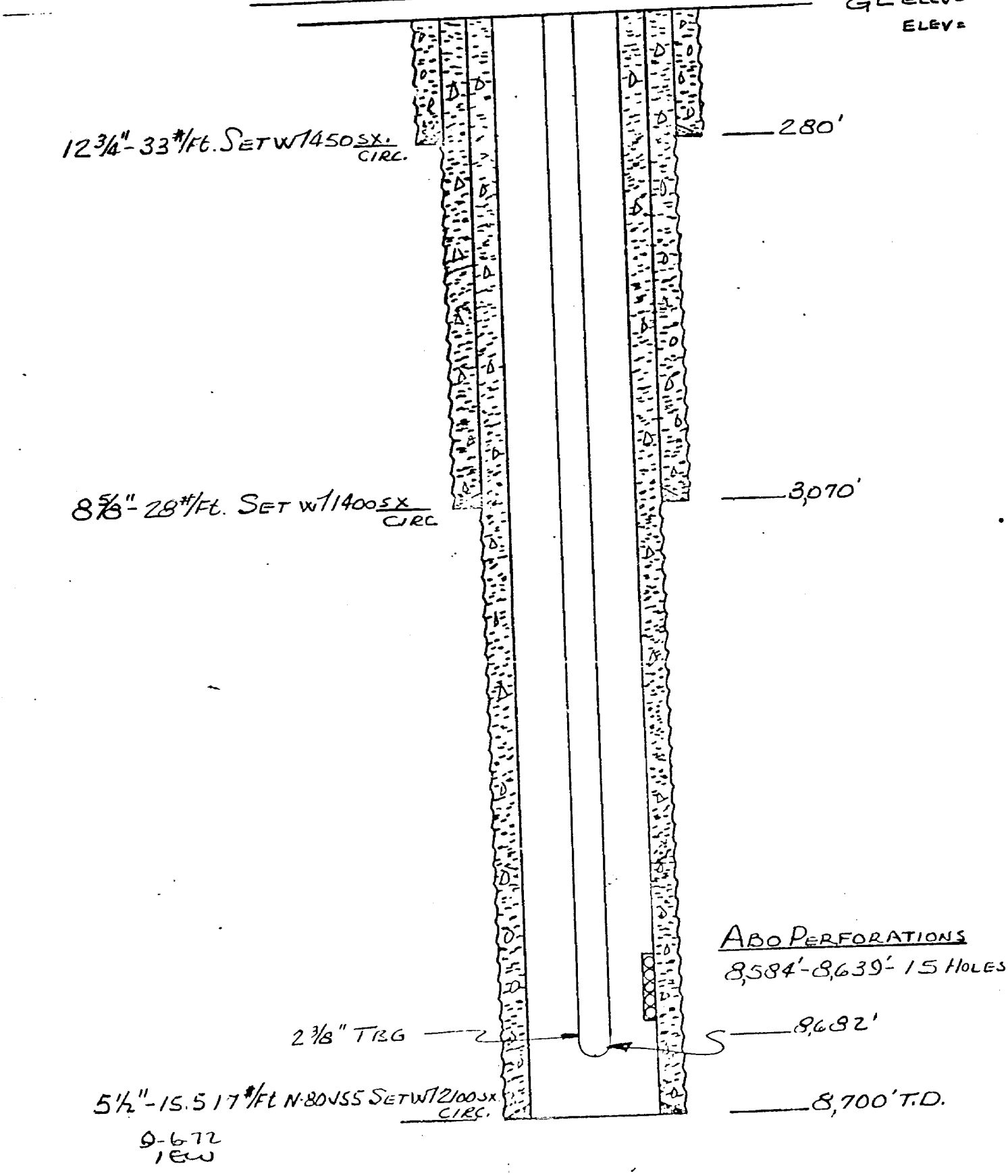


3-22-72
IEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 173
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 171
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



9-672
IEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 151
VACUUM (MORROW NO.) FIELD
LEA COUNTY NEW MEXICO

G.L. ELEV. = 4030
K.B. ELEV. =

13 3/8" - 48 54 & 61 #/FT. J-55 H-40
SET W/ 475 SX. CIRC.

CMT. TOP (TEMP SURVEY) ——— 350'

——— 780'

LINER TOP ——— ——— 4,259'

9 5/8" - 40 #/FT. S-95 SET W/ 1290 SX. ——— 5,050'

BAKER MODEL "D" PKR ——— ——— 11,765'

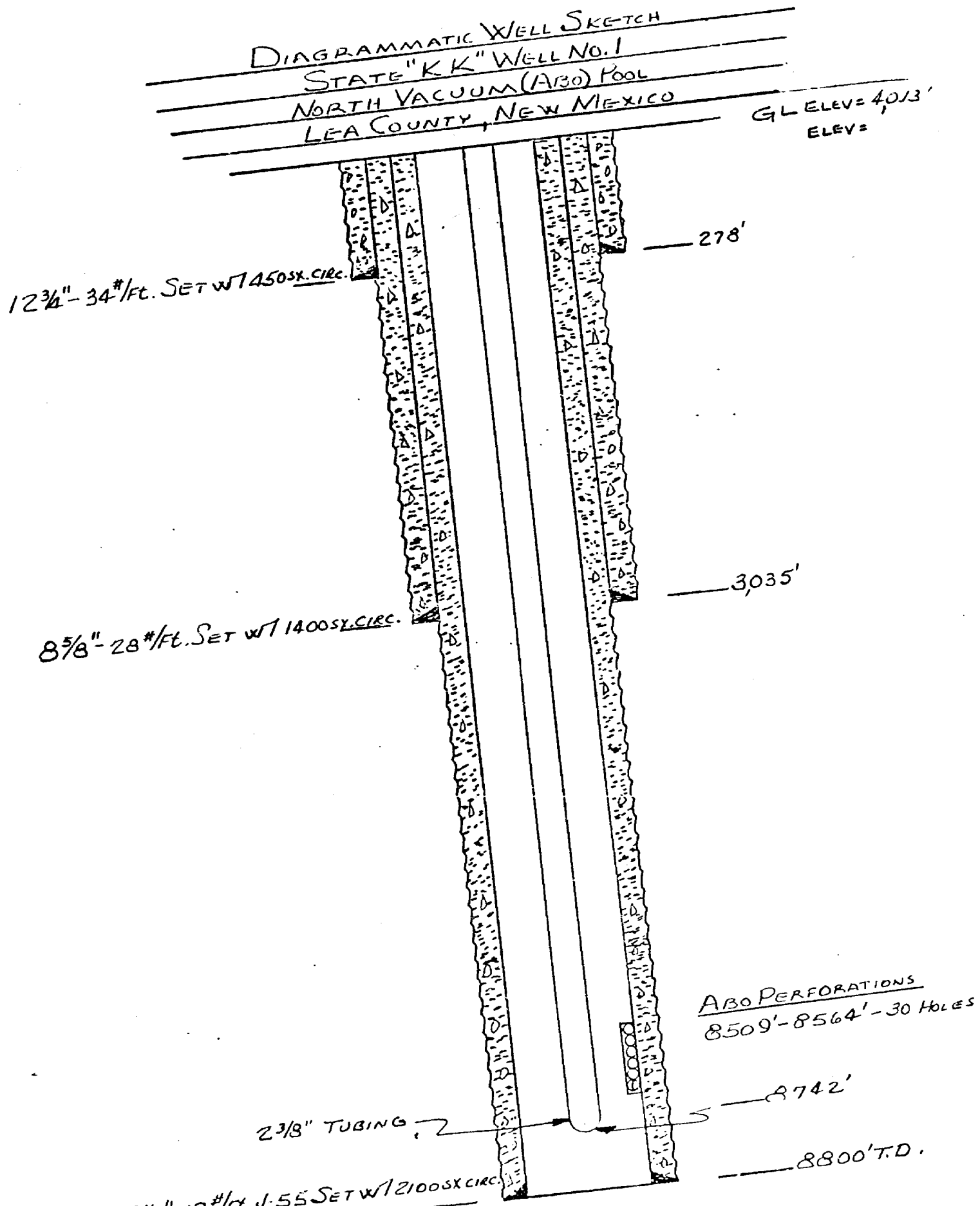
2 3/8" - N-80 TUBING TO 11,811'

MORROW PERFORATIONS
11853; 55; 57; 59; 61; 63; 65; 67; 69; 71; 73; 75; 77; 79; 11881' TOTAL 15 HOLE

7" - 26 #/FT. S-95 SET W/ 1700 SX. ——— 12,178'
12,180' T.D.

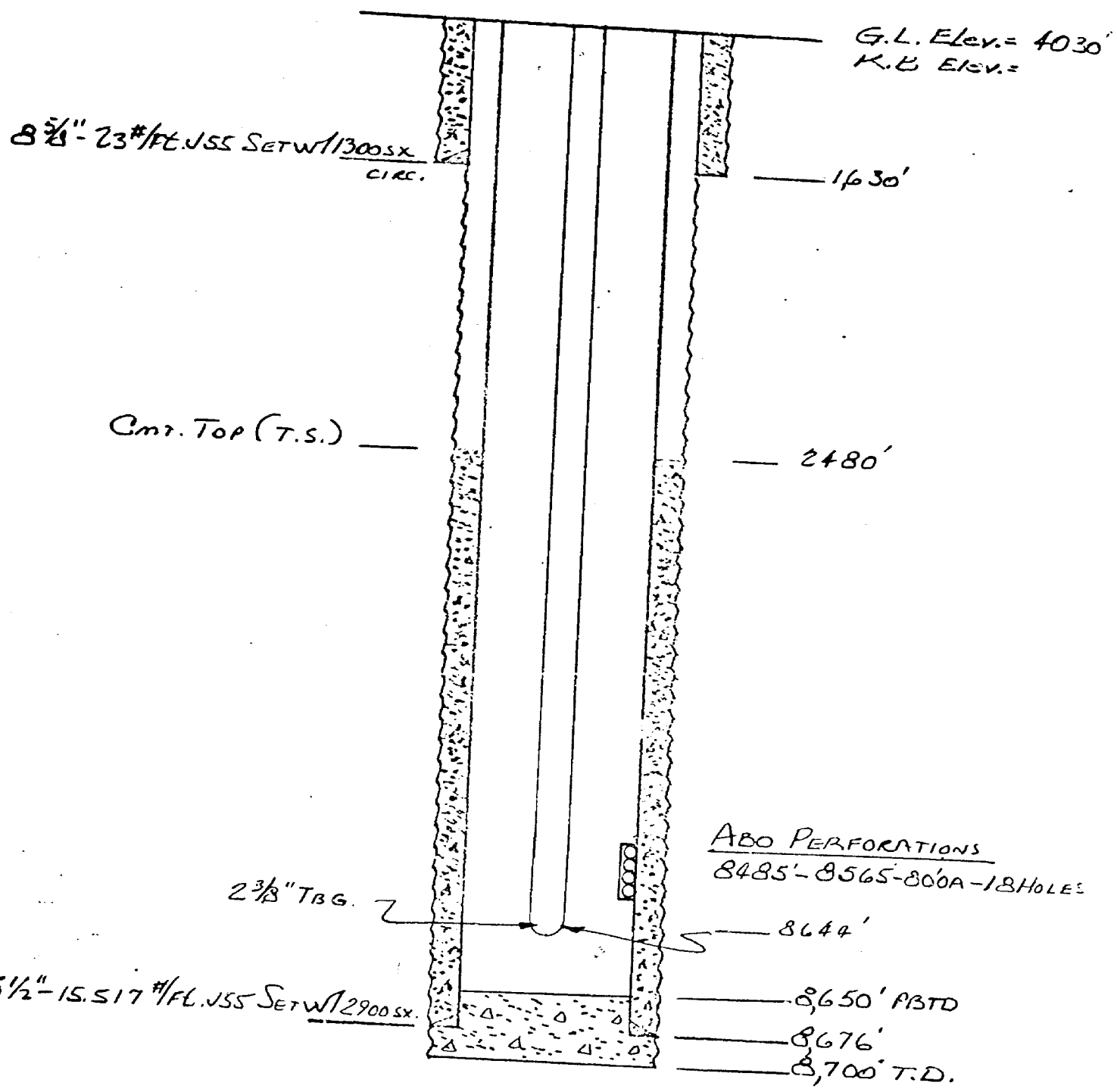
11-29-71

Diagrammatic Well Sketch
State "K K" Well No. 1
North Vacuum (Abo) Pool
Lea County, New Mexico



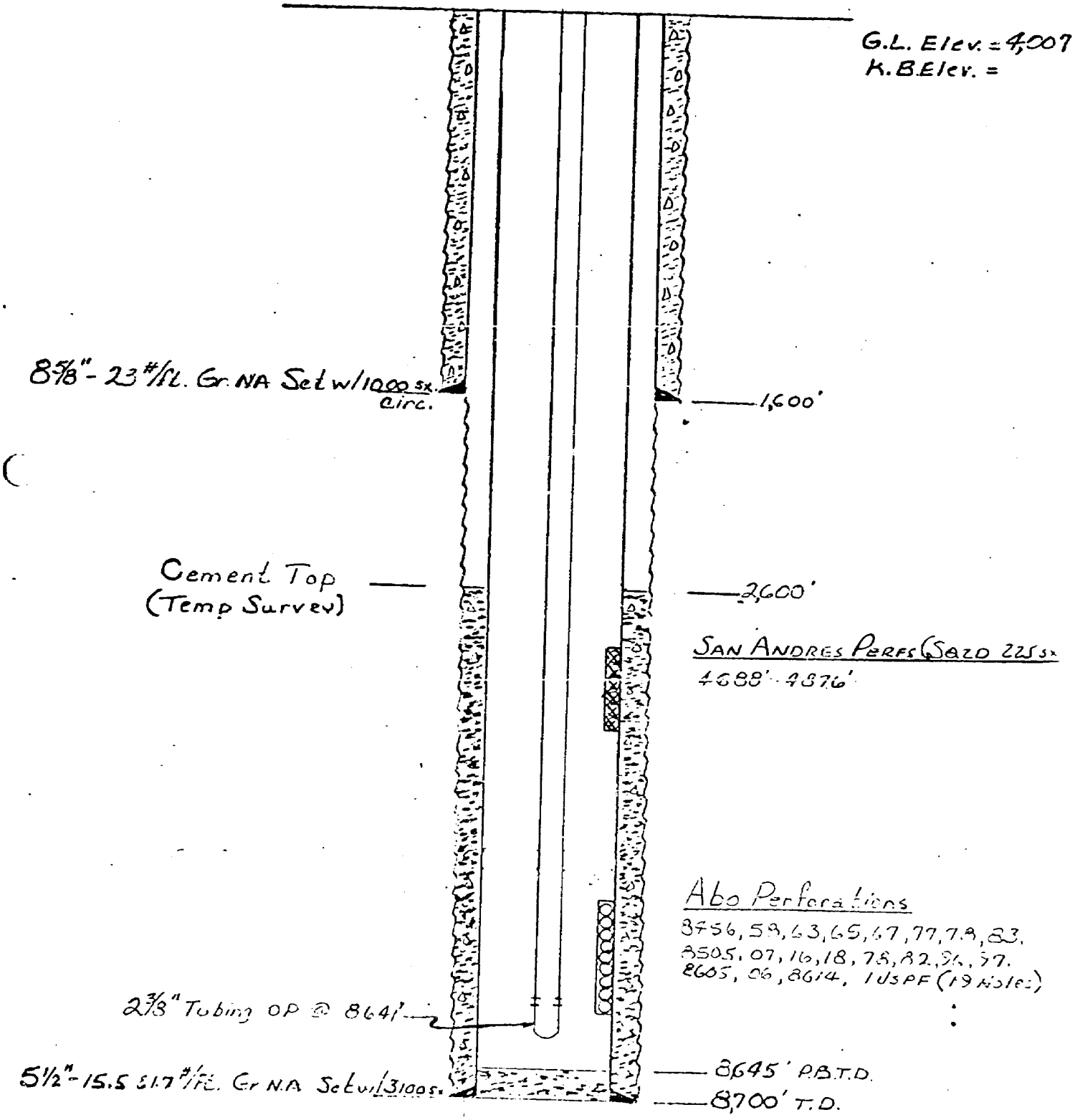
9-7-72
lew

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL No. 118
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



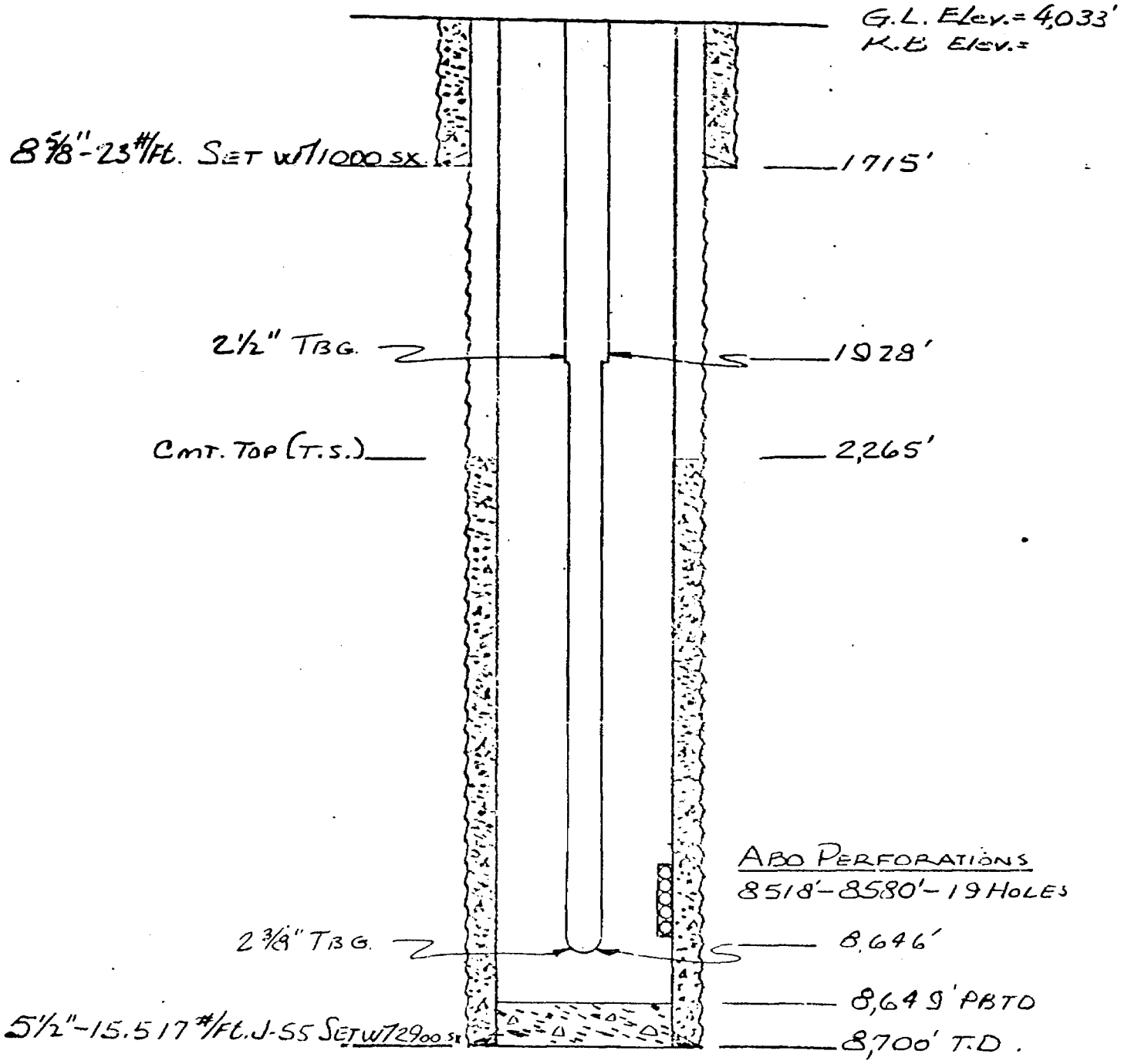
9-6-72
IEW

Diagrammatic Well Sketch
Bridges State Well No. 153
Vacuum (Abo, North) Field
Lea County, New Mexico



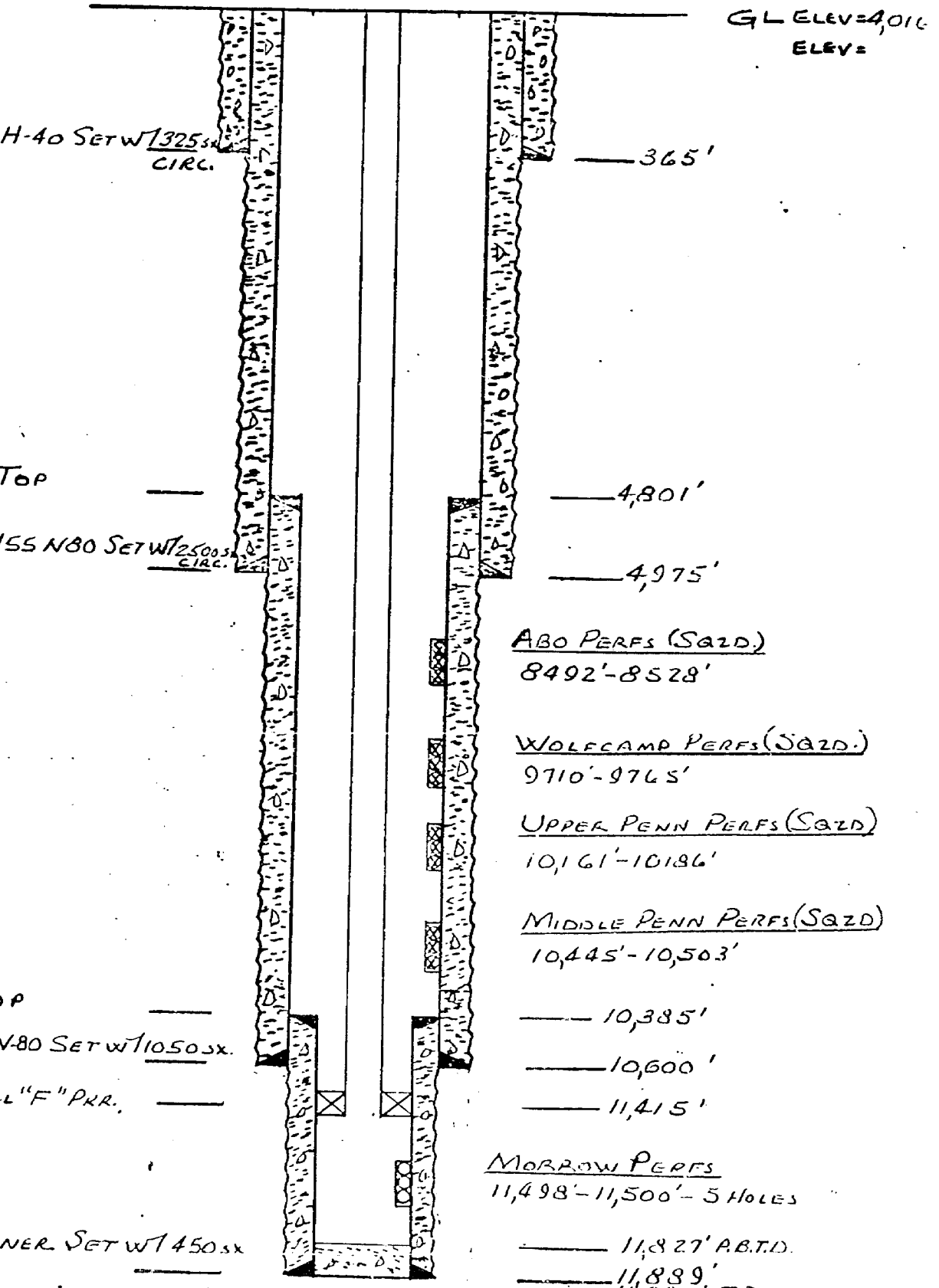
5-4-71
I.E.W.

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 140
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



9-6-72
IEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 125
NORTH VACUUM (MORROW) POOL
LEA COUNTY, NEW MEXICO



GL ELEV=4,016'
ELEV=

13 3/8" - 48#/Ft. H-40 Set W/ 1325 sx Circ.

365'

LINER TOP

9 5/8" - 36 40#/Ft. J55 N80 Set W/ 2500 sx Circ.

4,801'

4,975'

ABO PERFS (SQZD.)
8492'-8528'

WOLFCAMP PERFS (SQZD.)
9710'-9765'

UPPER PENN PERFS (SQZD)
10,161'-10186'

MIDDLE PENN PERFS (SQZD)
10,445'-10,503'

LINER TOP

7" 23#/Ft. S-95 N-80 Set W/ 10503 sx.

10,385'

MODEL "F" PKR.

10,600'

11,415'

MORROW PERFS
11,498'-11,500' - 5 HOLES

4 1/2" - 13.5#/Ft. LINER SET W/ 1450 sx

11,827' P.B.T.D.

11,889'
11,890' T.D.

9-7-72
JGW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 124
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO

GL ELEV = 4016'
ELEV =

13 3/8" - 48 #/Ft. H-40 SET W/ 1325 SX. CIRC.

353'

7" - 20 23 #/Ft. N80 J55 SET ON TOP OF LINER AND CMT. W/ 1600 SX CIRC.

9 5/8" - 36 40 #/FT. J55 SET W/ 2400 SX CIRC.

4,770'

4,977'

2 7/8" TBG.

PARALLEL ANCHOR

ABO PERFS
8495'-8549'-15 HOLES

8600'

2 3/8" TBG.

MODEL "D" PKR

10,050'

UPPER PENN PERFS
10,041'-10,149'

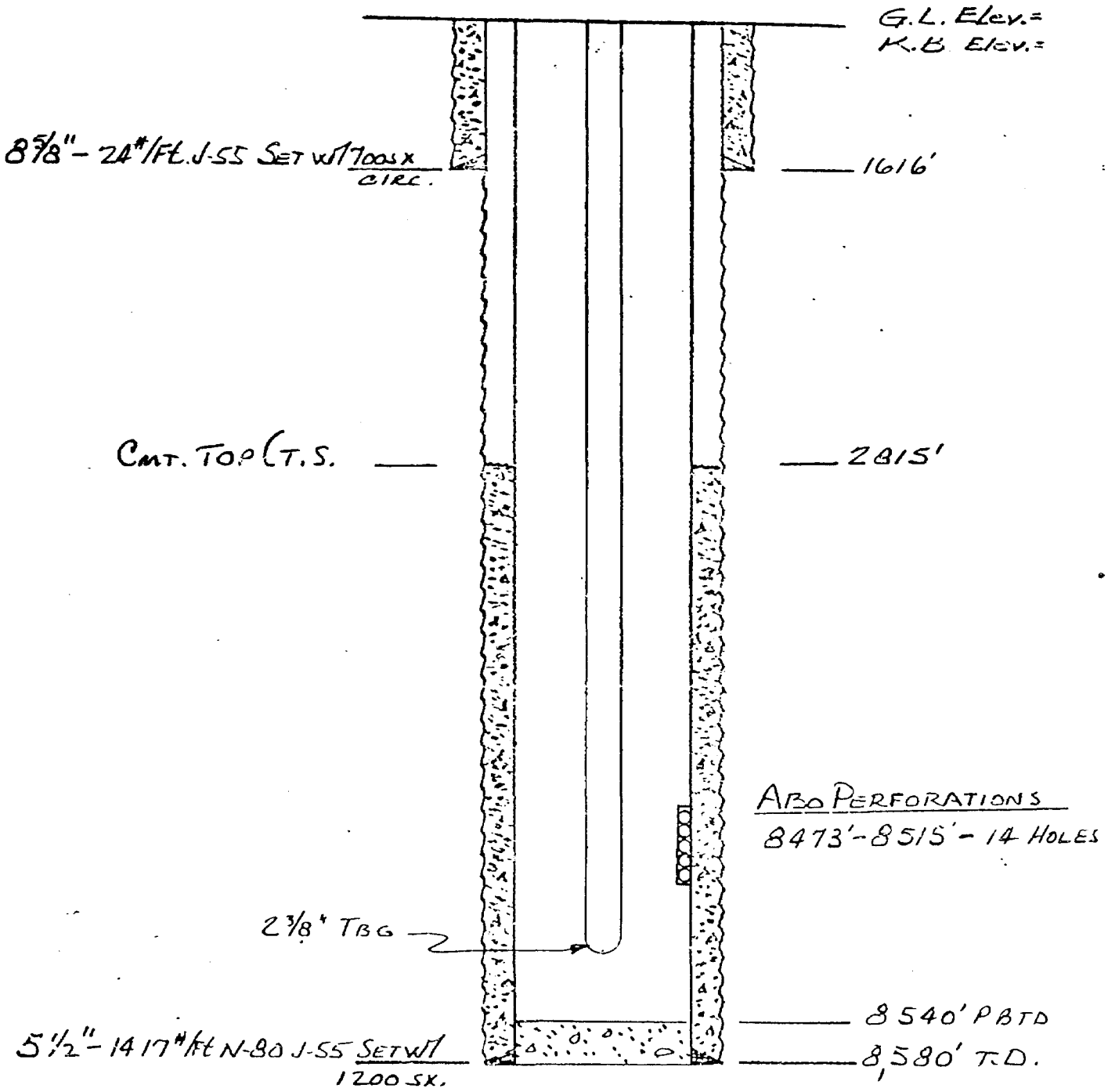
7" - S-95 & N-80 SET W/ 1750 SX.

10,165' P.B.T.D.

10,565' T.D.

9-7-72
I EW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 128
NORTH VACCUM (ABO) POOL
LEA COUNTY, NEW MEXICO



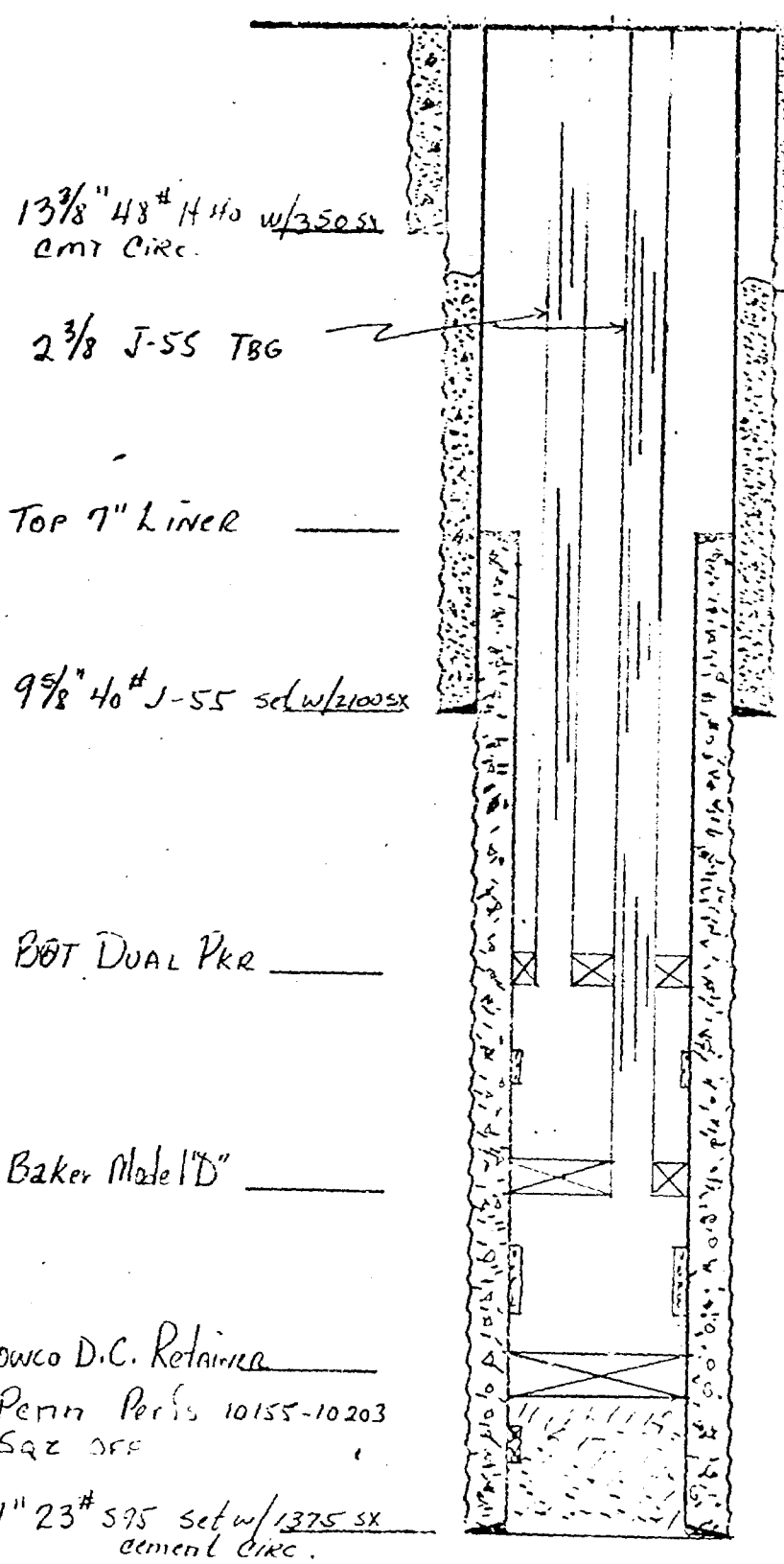
9-6-72
IGJ

Diagrammatic Well Sketch

Bridges STATE Well # 117

Vacuum (Wolfcamp) Field

Lea County, New Mexico



G.L Elev. = 4,030'

KB Elev. -

13 3/8" 48# H 40 w/350sx cmt circ. — 366'

TOP Cement 765'

2 3/8 J-55 TBG

TOP 7" LINER — 4710'

9 5/8" 40# J-55 set w/2100sx — 5000'

BOT DUAL PKR — 8399'

Abo Perfs
8445-8482' 8 Holes

Baker Model "D" — 9600'

Wolfcamp Perfs
9636-10104' 16 Holes

Howco D.C. Retainer — 10,116'

Penn Perfs 10155-10203 — PBTD 10116'
Sqz Off

7" 23# S95 set w/1375 SX cement circ. — TD 10414'

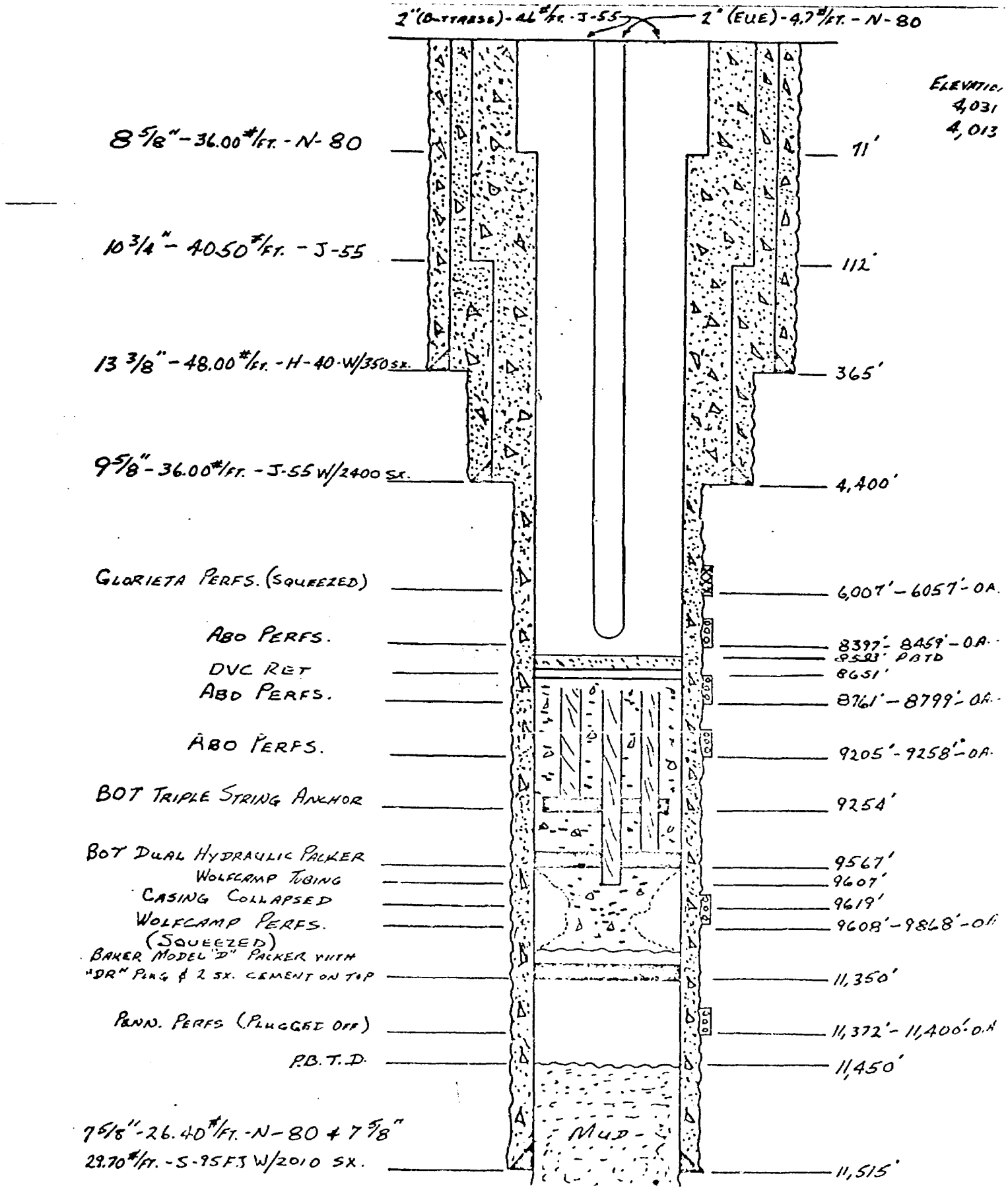
9-7-72
TEW

DIAGRAMMATIC WELL SKETCH

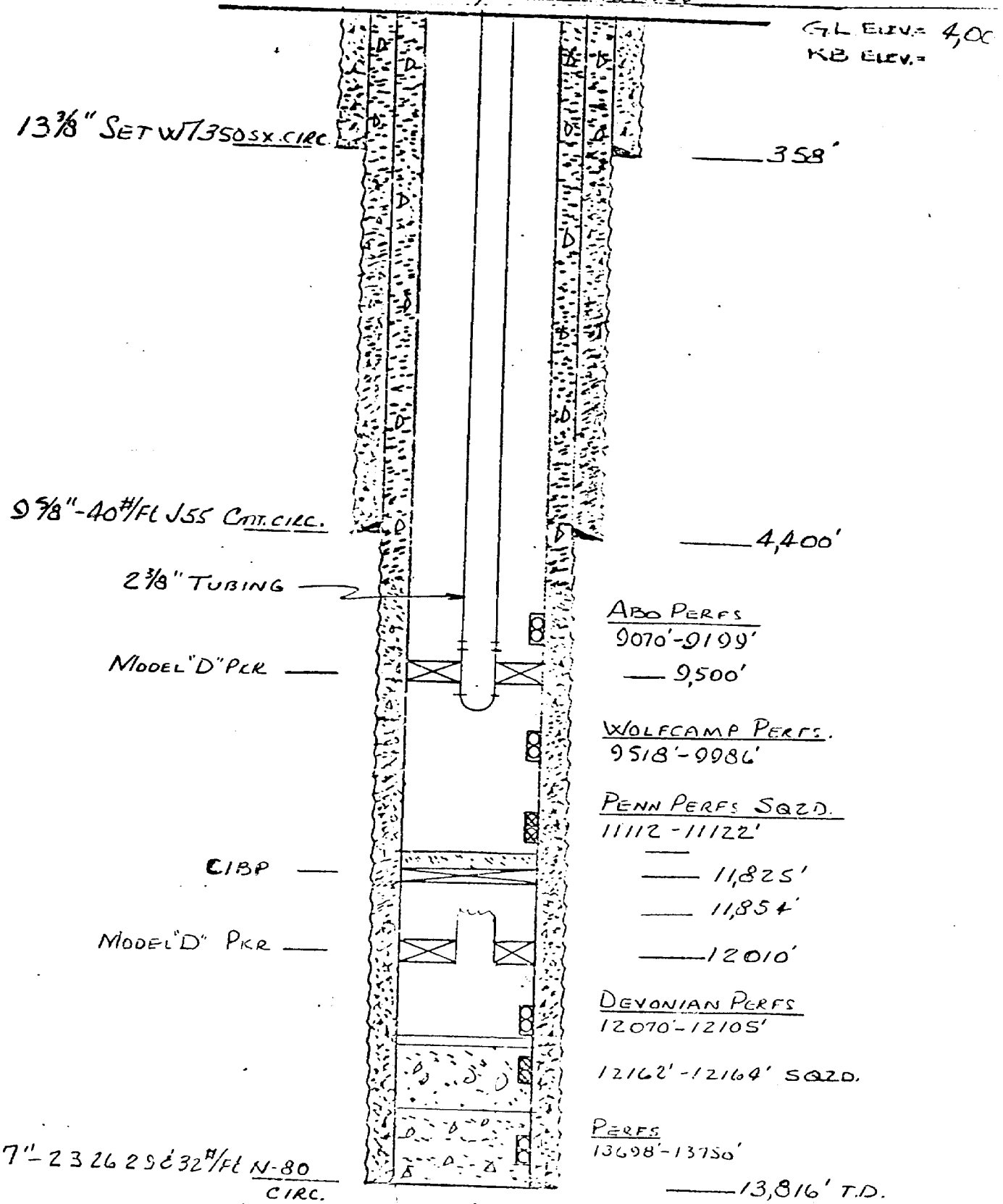
STATE BRIDGES WELL No. 96

VACUUM, (NORTH ABO) AND VACUUM (WOLFCAMP) FIELDS

LEA COUNTY, NEW MEXICO



Diagrammatic Well Sketch
Bridges State Well No. 95
North Vacuum (Abo) Pool
Lea County, New Mexico



Abo Perfs
9070'-9199'

Wolfcamp Perfs.
9518'-9986'

Penn Perfs Sqzd.
11112-11122'

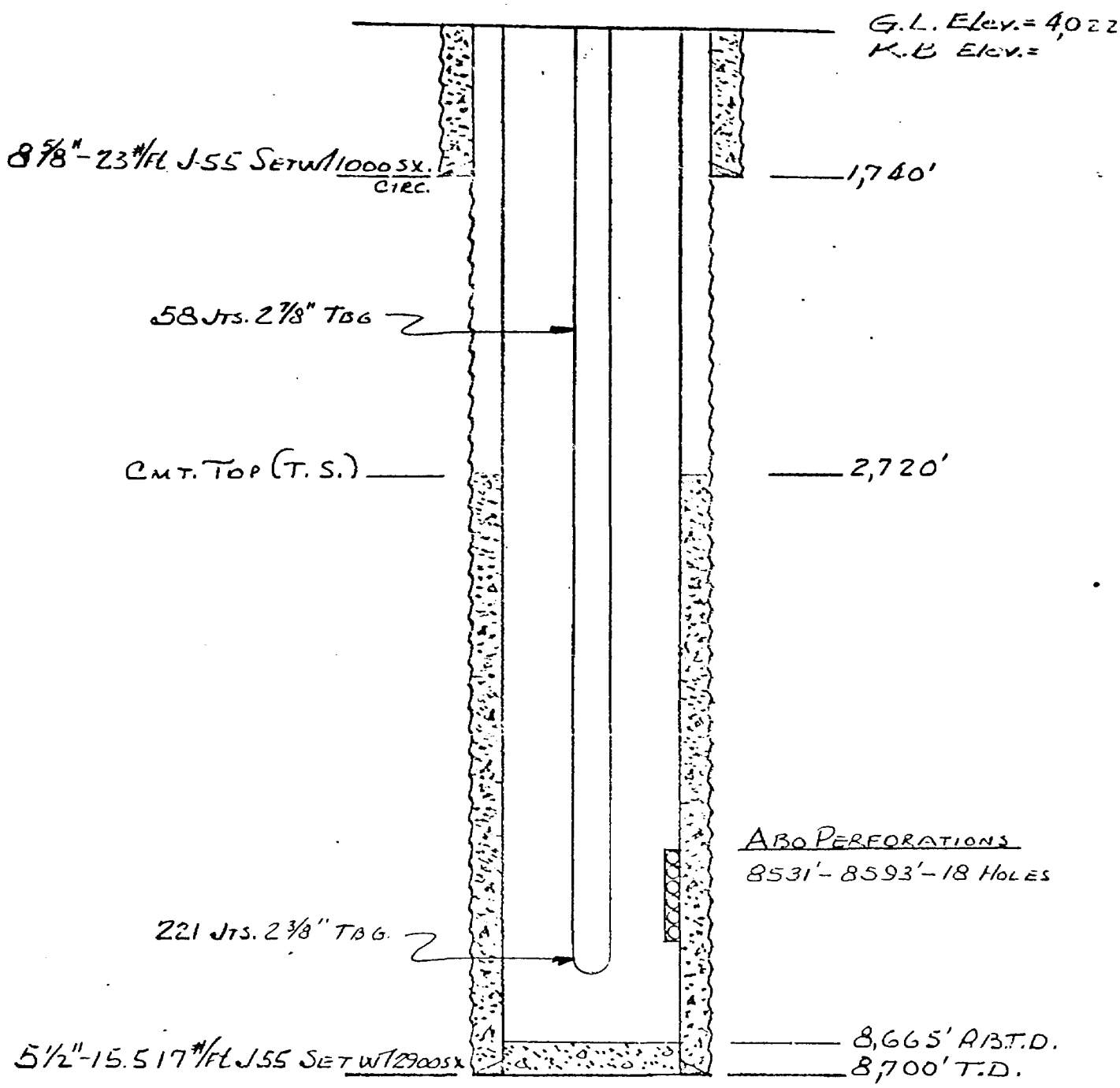
Devonian Perfs
12070'-12105'

12162'-12164' Sqzd.

Perfs
13698'-13750'

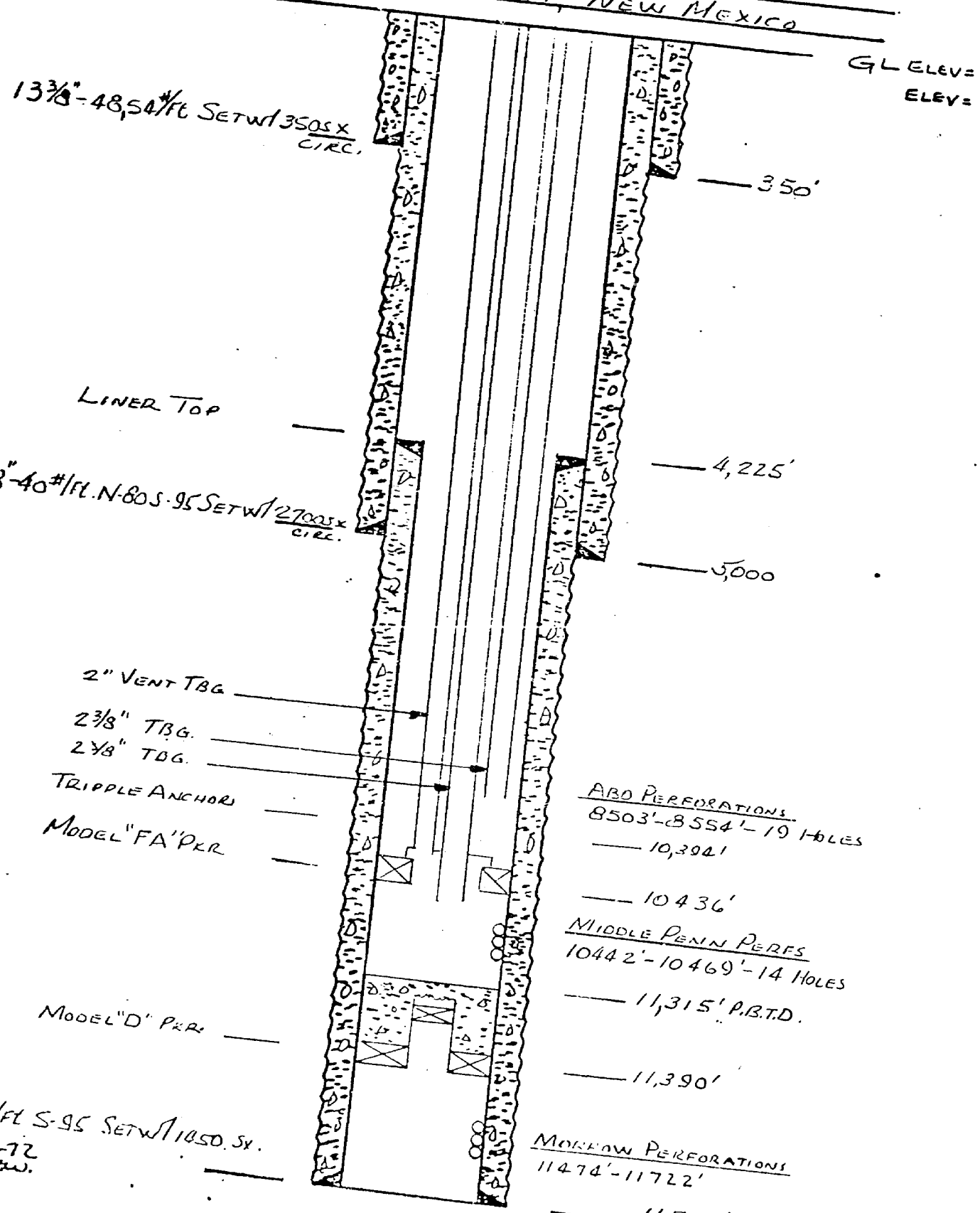
9-7-72
LEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 150
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO

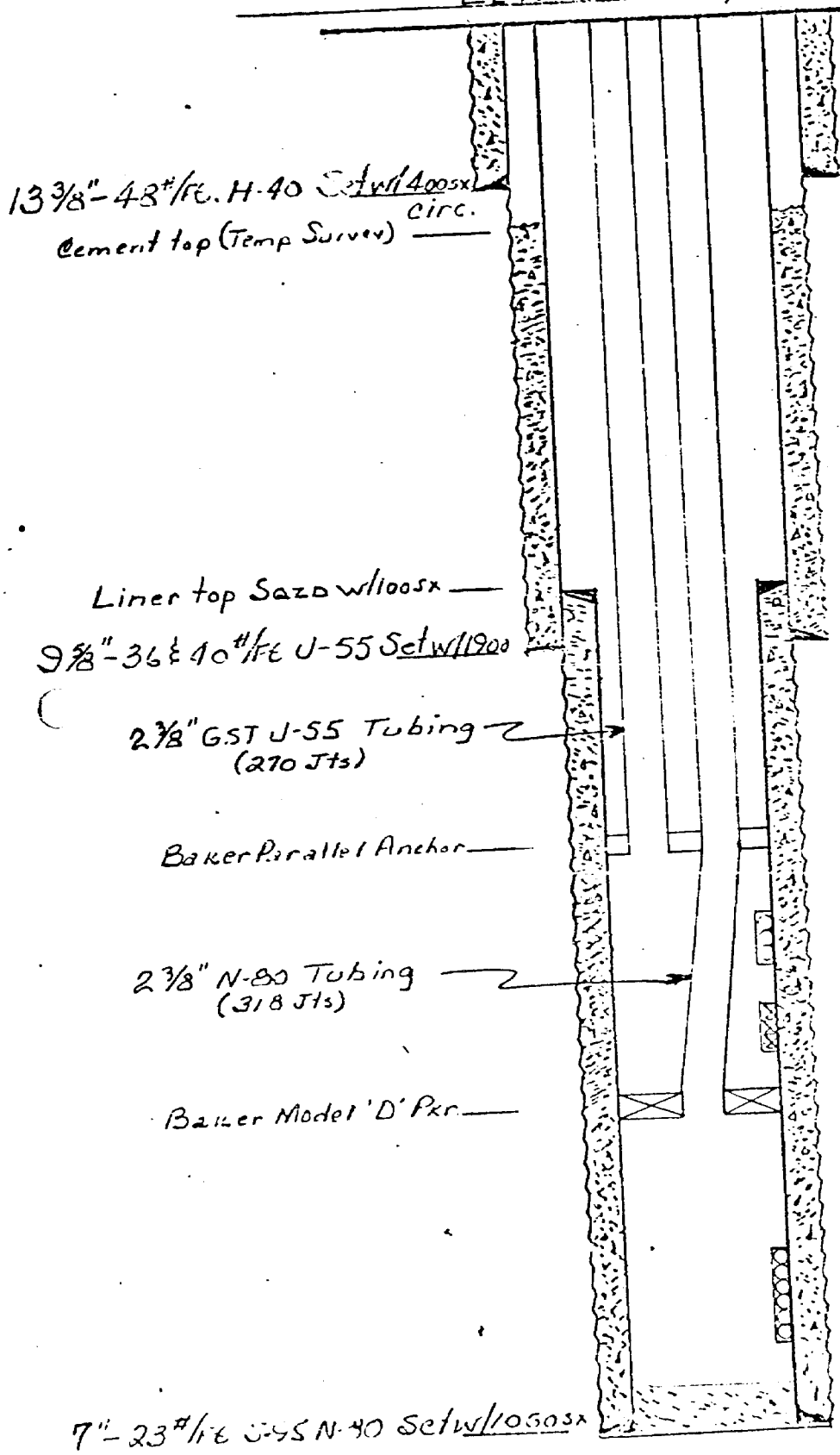


9-6-72
TEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 147
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO

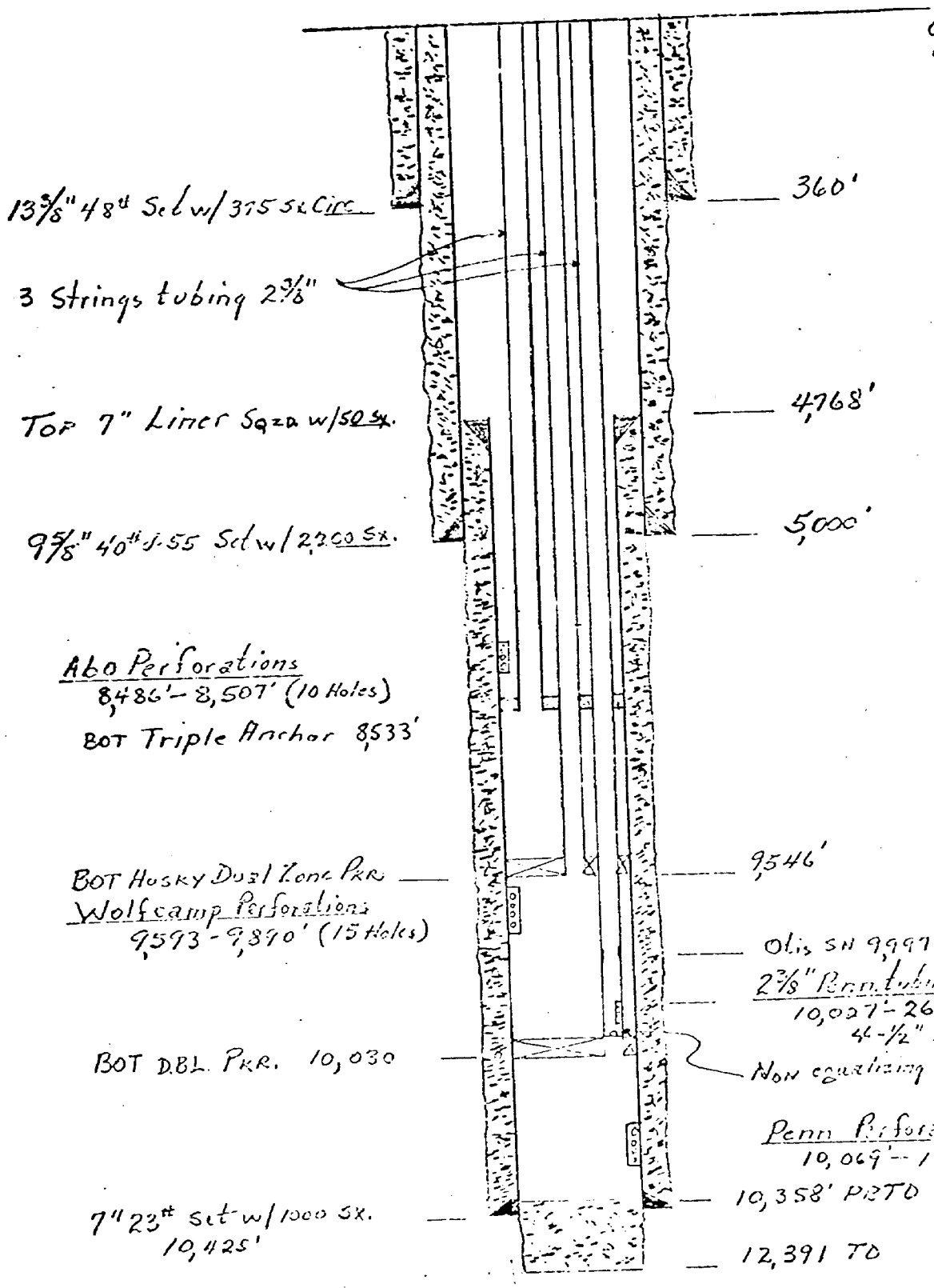


Diagrammatic Well Sketch
Bridges State Well No. 120
Vacuum North Abo Field
Lea County, New Mexico



9-10-71
IEW

Diagrammatic Well Sketch
Bridges State Well #119
N. Vacuum (Abo) (Wolfcamp) Pool
Lea County, New Mexico



C.1

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL #109
VACUUM (WOLFCAMP) FIELD
LEA COUNTY, NEW MEXICO

G.L. Elev. =
K.B. Elev. -

365'

13 3/8" 48# H-40 Set w/ 350 Sx. CIRC.

Top of Cement 1900'
(Temp Survey)

2 3/8" Tbg 8 Rd.
2 3/8 GST
2 3/8 CS Hyd.

4890'

Top 7" LINER
cemented

4980'

9 5/8" 36-40# Set w/ 2600 Sx.

Abo Perfs
8427 - 8466'

± 8500'

TRIPLE ANCHOR

± 9500'

Guib. Dual PKR

9920' - Mech. S.N.

Wolfcamp Perfs
9532 - 10,049'
40 HOLES

Tbg. perfs 9995-10,000' w/ 12 Jts.

10,008' - 1.25/32 S.N.

10,100'

Guib TYPE 'A' PKR
(LATCH IN)

U. Penn Perfs
10,114' - 124'

PBTD 10,276'

10,366

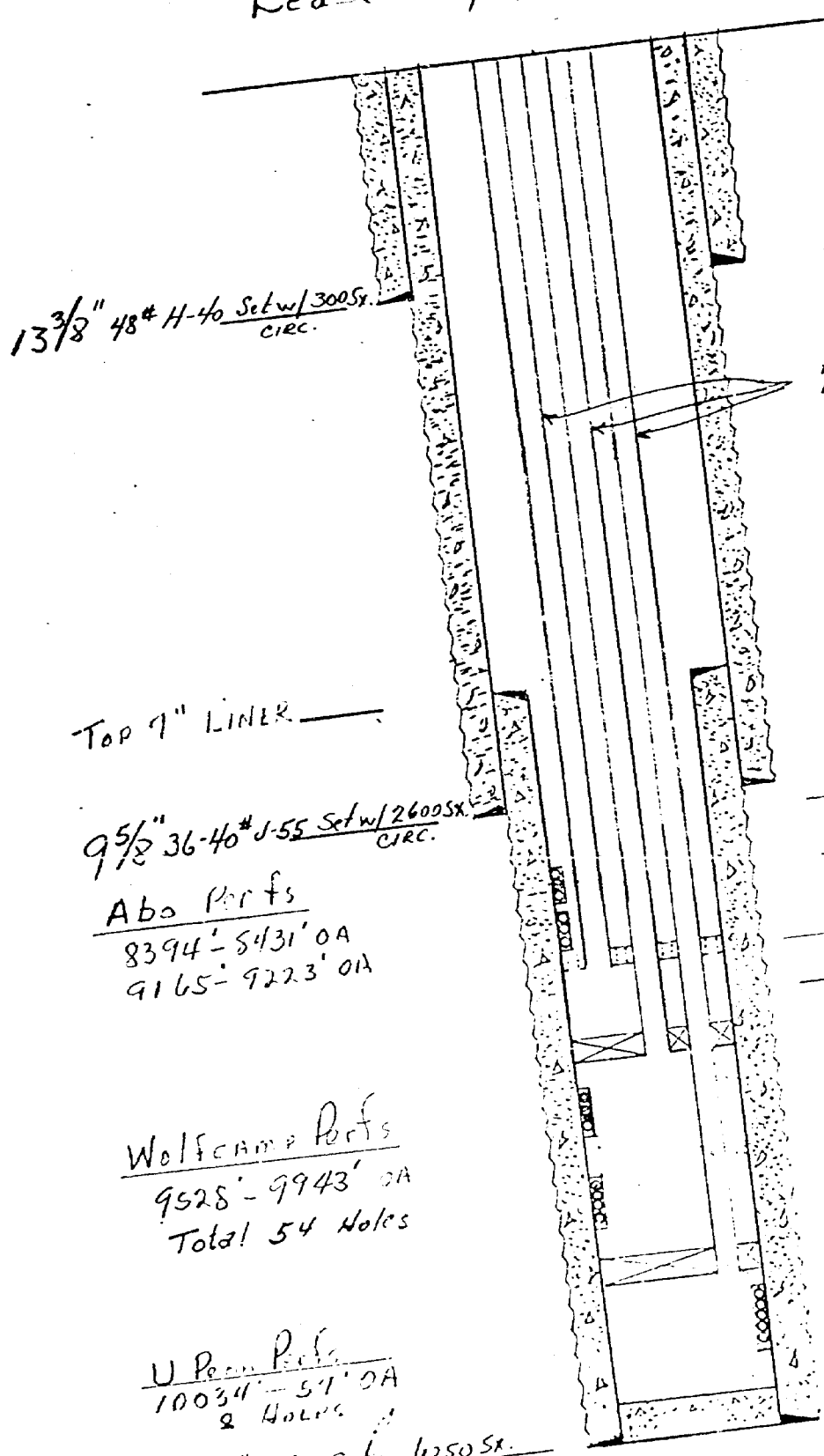
7" 23# S-95 set w/ 1125 Sx.

TD 12,470'

Revised to reflect commingling down-hole of Wolf. & U. Penn.
JCG/1-11-71.

W.N.

Diagrammatic Well Sketch
Bridge Drlg. Well #108
North Vacuum (Abo) Pool
Lea County, New Mexico



13 3/8" 48# H-40 Set w/ 300 Sx. circ.

365'

2 3/8" Tbg.

4691'

5000'

Top 7" LINER

9 5/8" 36-40# J-55 Set w/ 2600 Sx. circ.

Abo Perfs
8394 - 9431' OA
9165 - 9223' OA

Guib. Triple Anchor 9,291'

Col. Csg. Swedged out 9,324' - 34'

Guib. Dual Zone Pkr 1457'

Wolfcamp Perfs
9528 - 9943' OA
Total 54 Holes

Guib. Model A Pkr 10009'

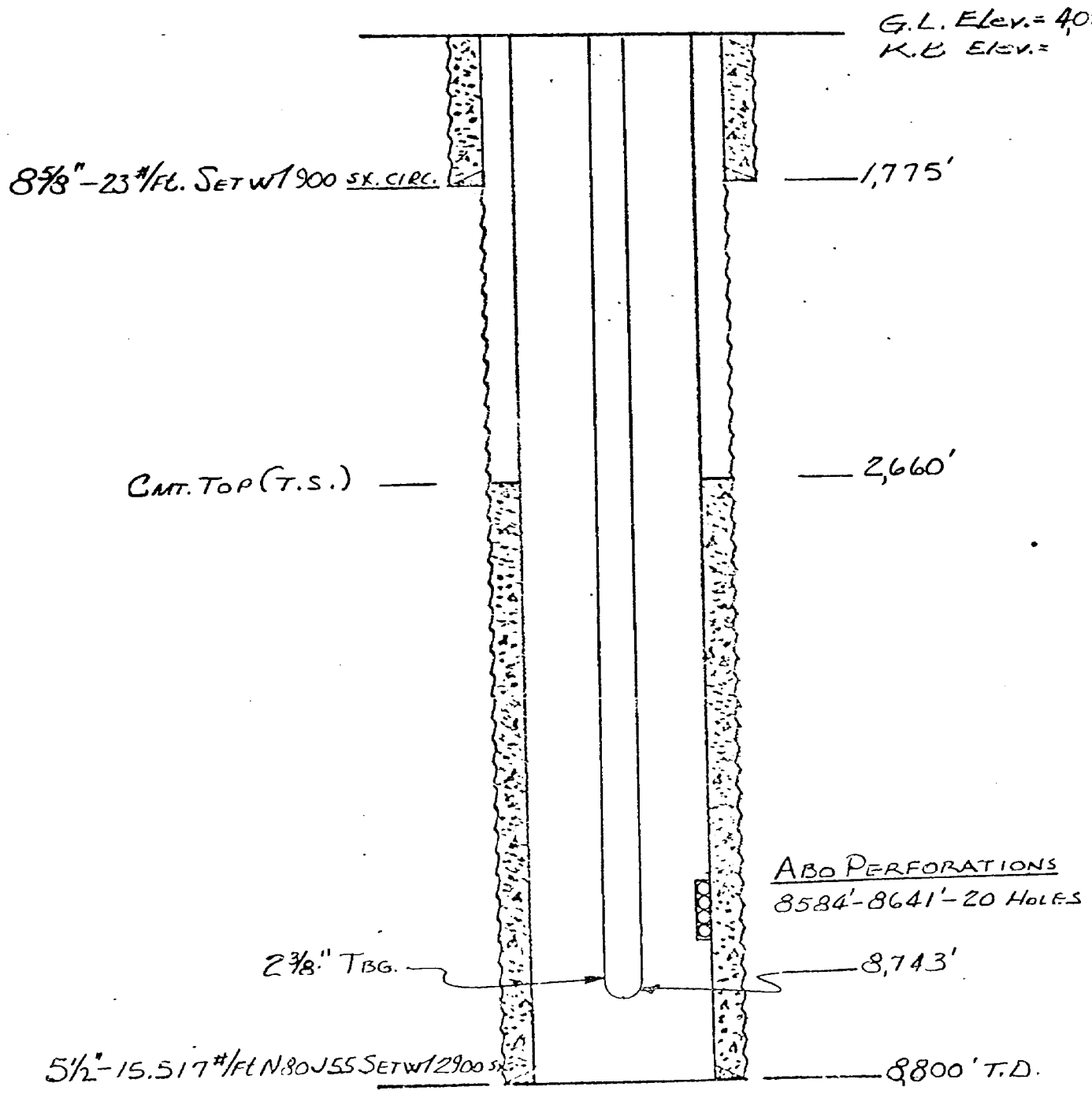
U Penn Perfs
10034 - 51' OA
8 Holes

10130 PBTD

10,300 TD

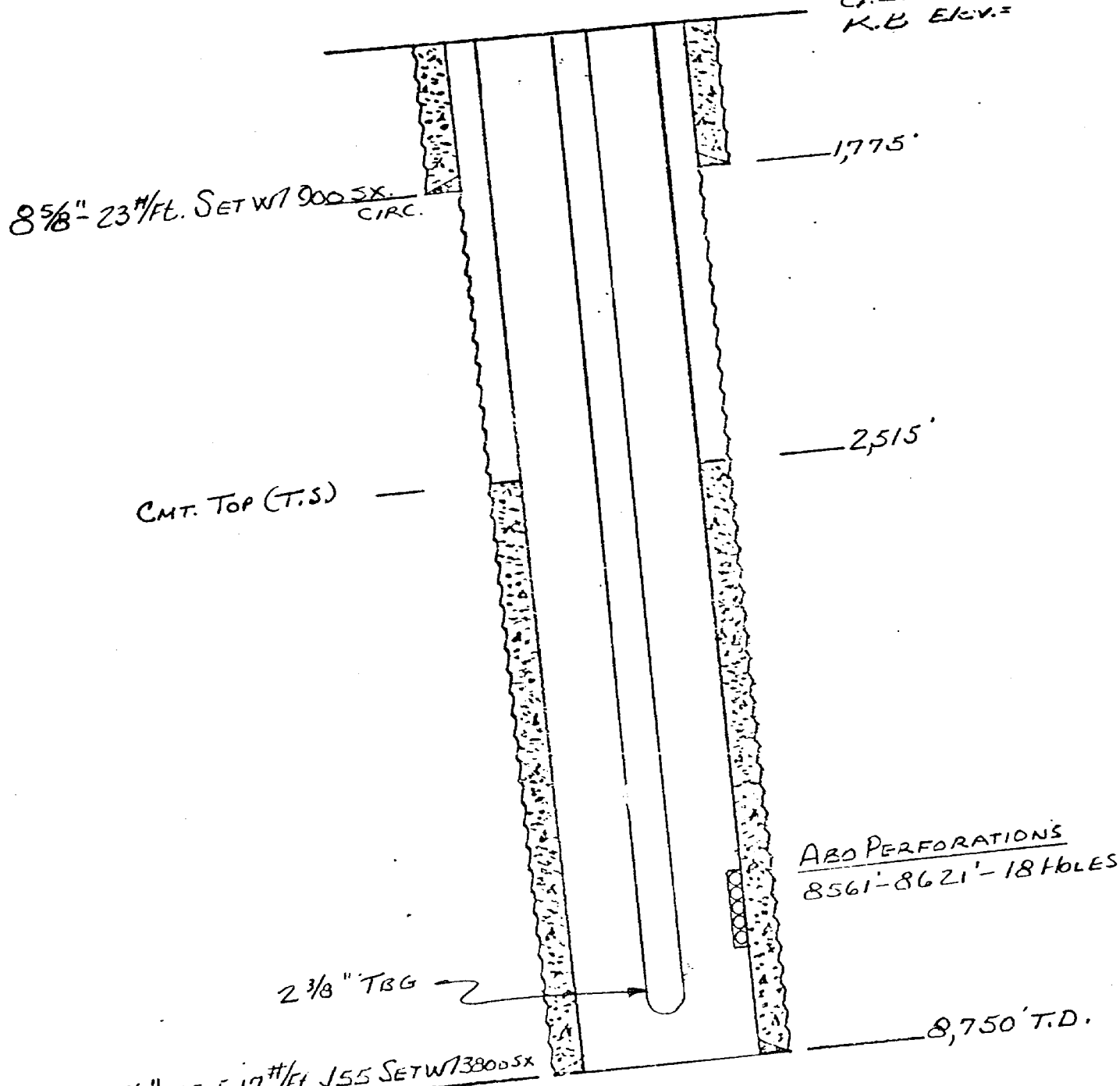
7" 23# N-80 Set w/ 1250 Sx. circ.

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 161
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



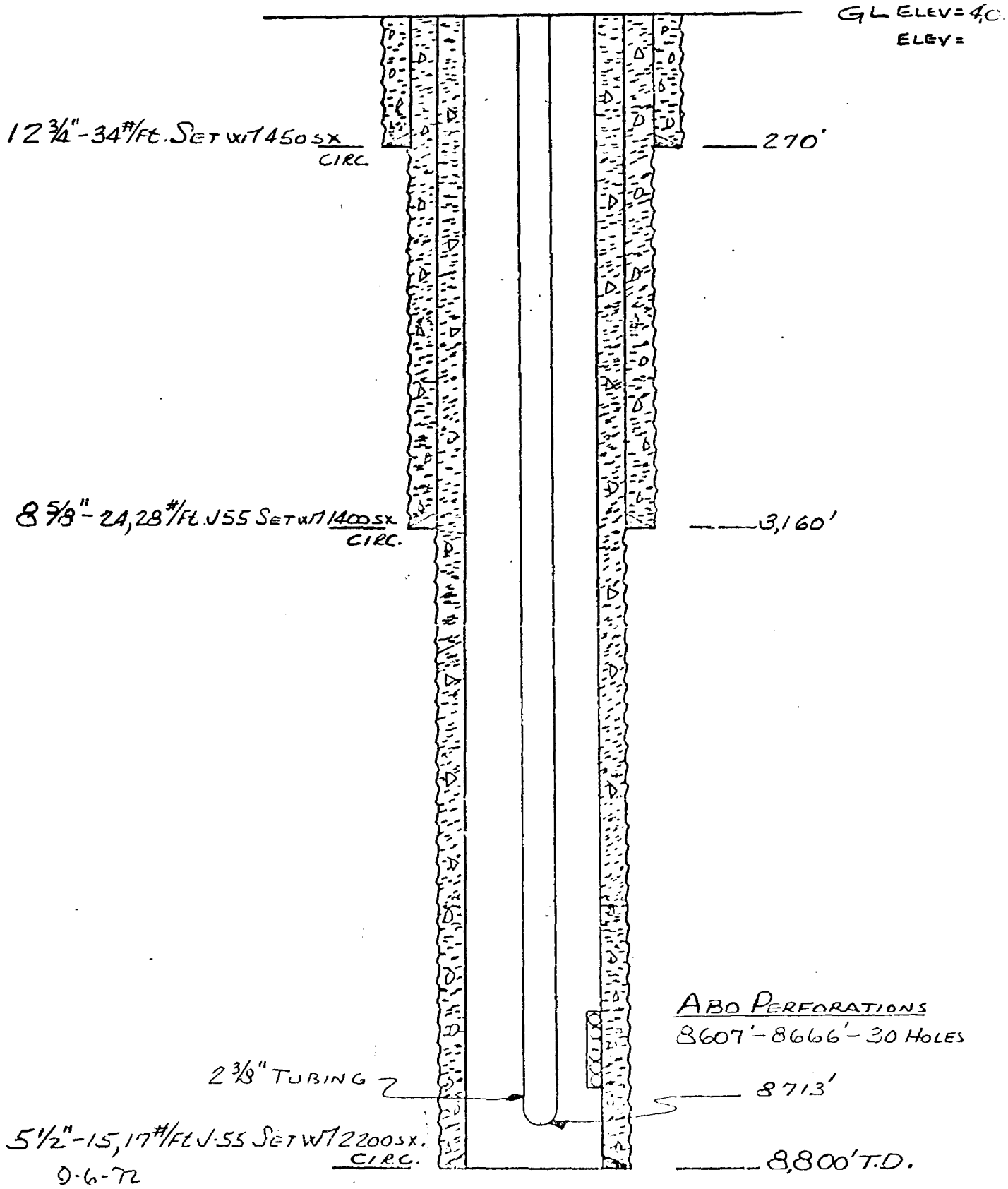
9-6-72
IEW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 159
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



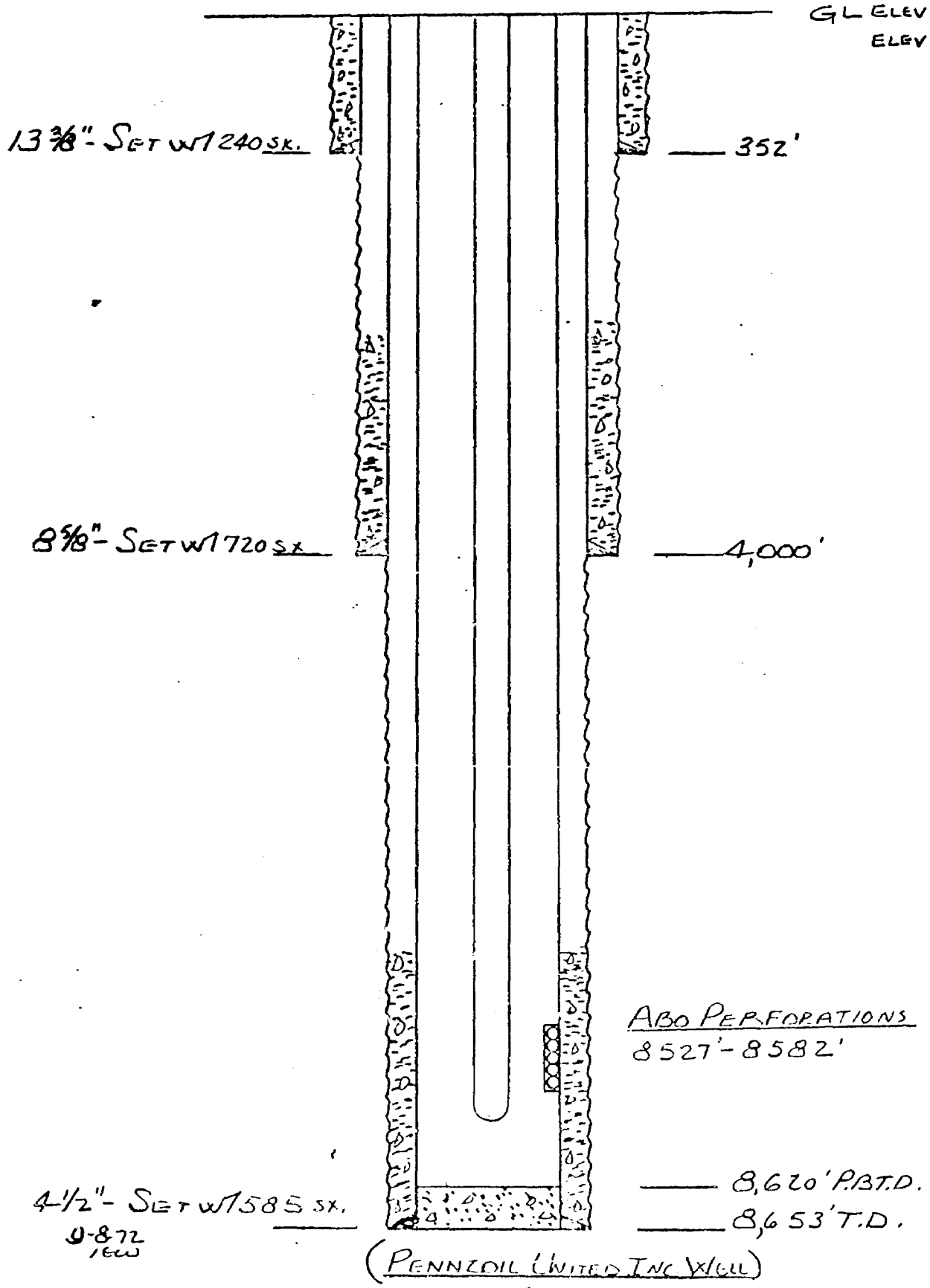
9-6-72
1 EW

DIAGRAMMATIC WELL SKETCH
BRIDGES STATE WELL NO. 169
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO

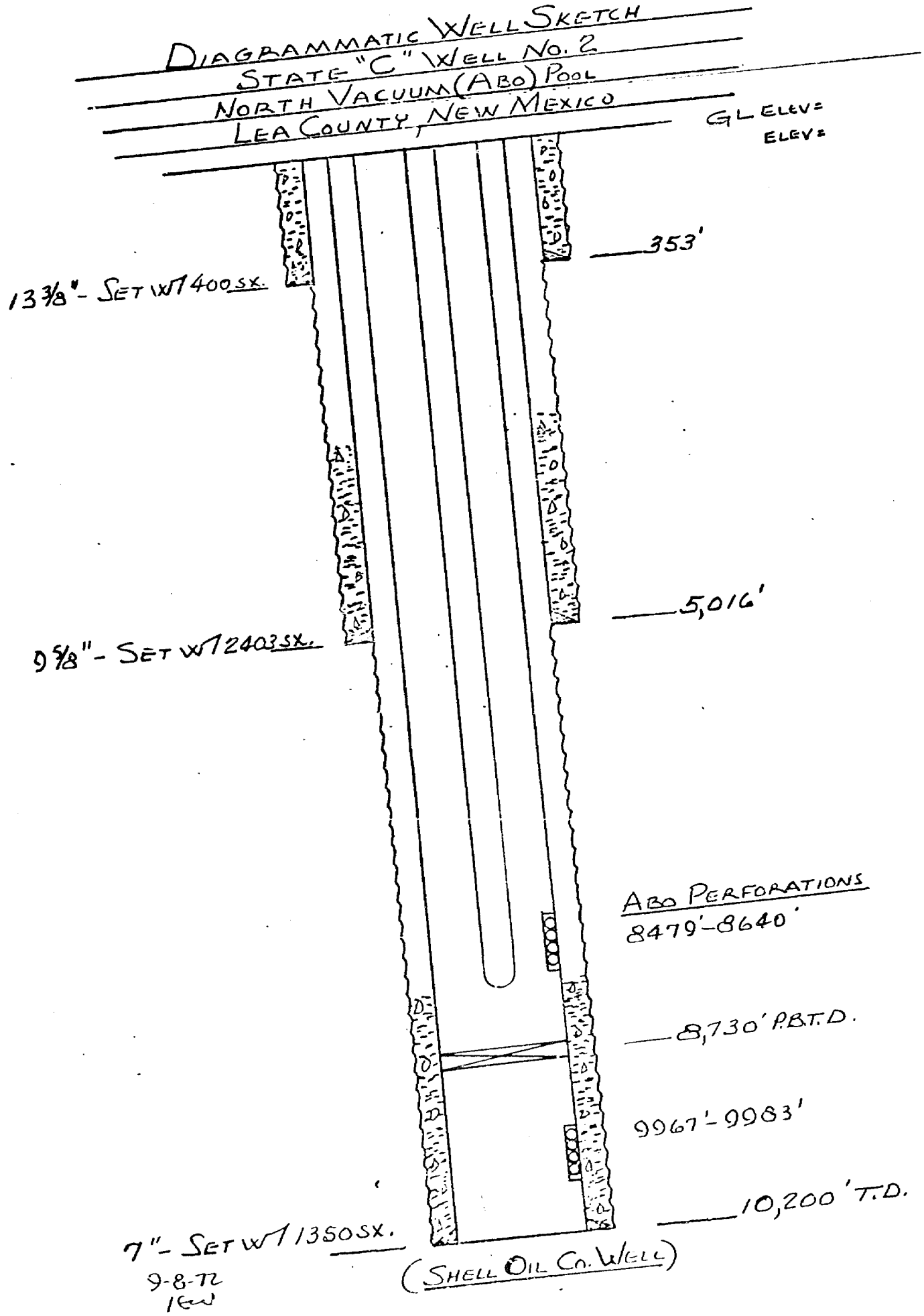


9-6-72
IEW

DIAGRAMMATIC WELL SKETCH
MOBIL "24" STATE COM. WELL NO. 1
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO

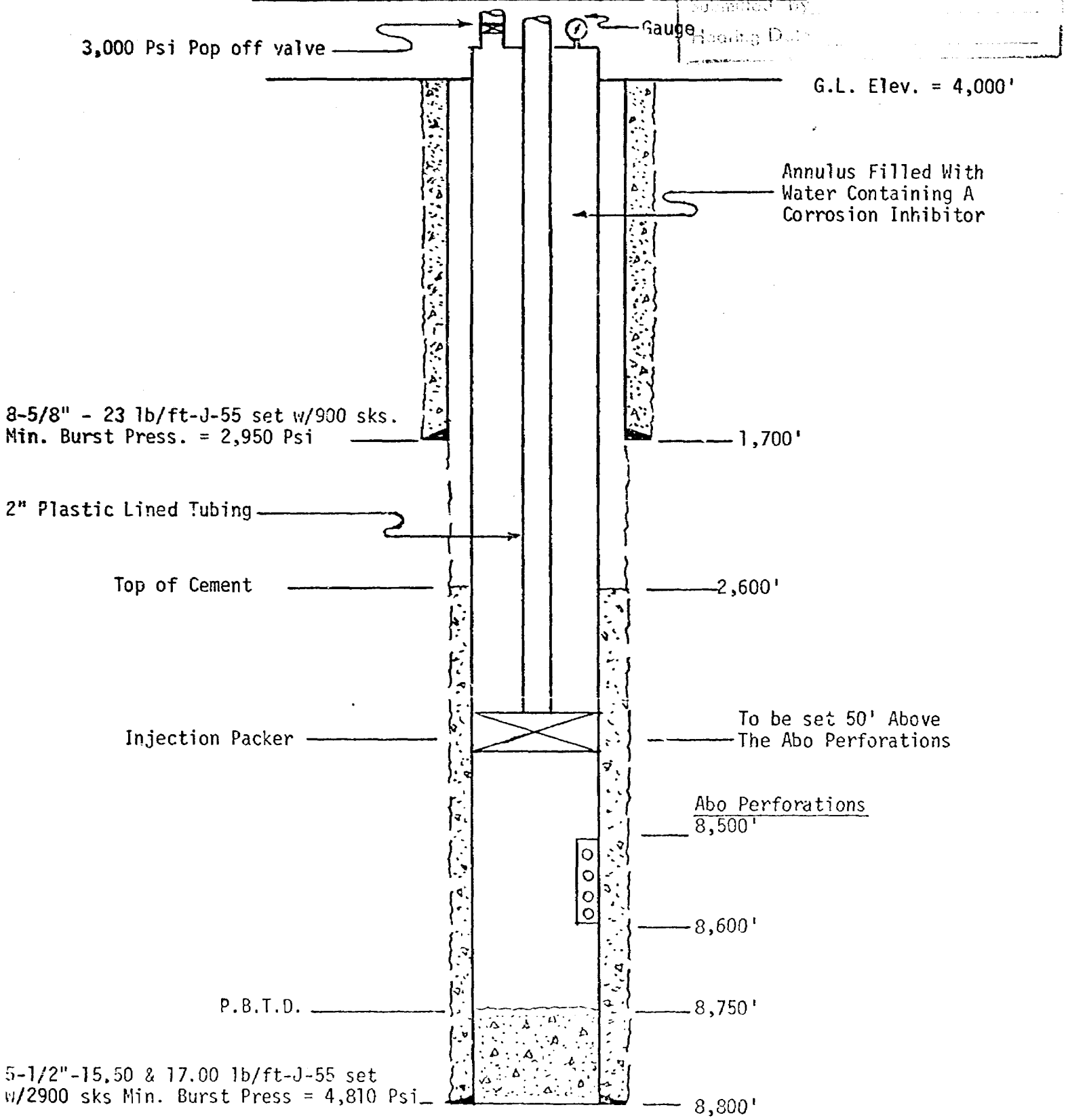


DIAGRAMMATIC WELL SKETCH
STATE "C" WELL NO. 2
NORTH VACUUM (ABO) POOL
LEA COUNTY, NEW MEXICO



DIAGRAMMATIC WELL SKETCH
TYPICAL SINGLE WELL
NORTH VACUUM ABO UNIT
NORTH VACUUM (ABO) FIELD
LEA COUNTY, NEW MEXICO

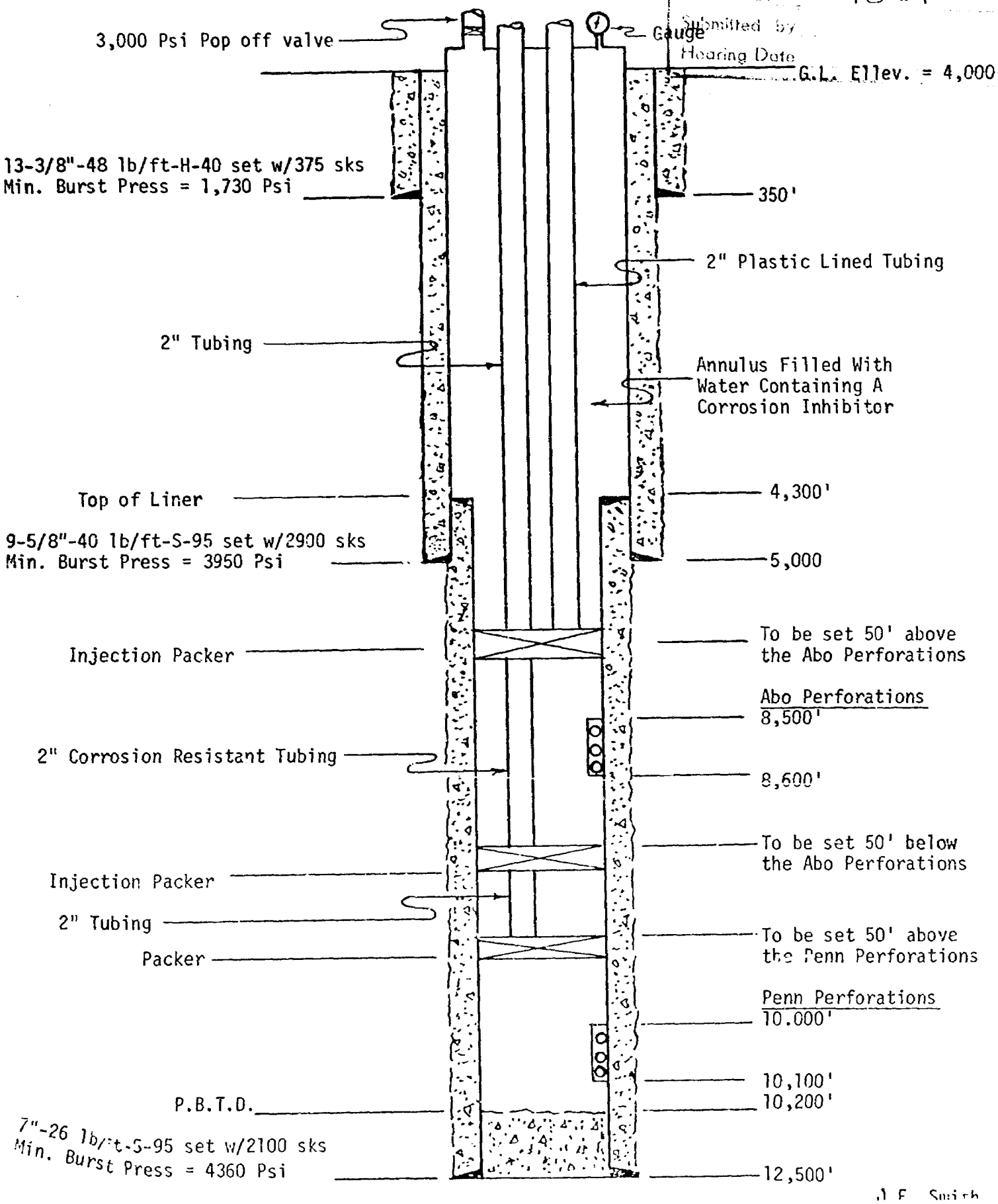
BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 12
CASE NO.
Submitted by
Hearing Date



John E. Smith
9-15-72

DIAGRAMMATIC WELL SKETCH
TYPICAL DUAL WELL
NORTH VACUUM ABO UNIT
NORTH VACUUM (ABO) FIELD
LEA COUNTY, NEW MEXICO

OIL CONSERVATION COMMISSION
EXHIBIT NO. 13
CASE NO. 4831
Submitted by
Hearing Date



J. E. Smith

J. R. MODRALL
JAMES E. SPERLING
JOSEPH E. ROEHL
GEORGE T. HARRIS, JR.
DANIEL A. SISK
LELAND S. SEDBERRY, JR.
ALLEN C. DEWEY, JR.
FRANK H. ALLEN, JR.
JAMES P. SAUNDERS, JR.
JAMES A. PARKER
JOHN R. COONEY
KENNETH L. HARRIGAN
PETER J. ADANG

DALE W. EK
DENNIS J. FALK
ARTHUR D. MELENDRES
BRUCE D. BLACK

LAW OFFICES OF
MODRALL, SPERLING, ROEHL, HARRIS & SISK
PUBLIC SERVICE BUILDING
P. O. BOX 2168
ALBUQUERQUE, NEW MEXICO 87103

JOHN F. SIMMS (1885-1954)
AUGUSTUS T. SEYMOUR
(1907-1965)

TELEPHONE 243-4511
AREA CODE 505

September 14, 1972

DBF
Cases 4830 + 4831

Mr. George Hatch
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear George:

Pursuant to telephone conversation this morning, you have agreed to make the following amendments to Mobil Oil Corporation's applications as follows:

1. Application for Authority to Institute a Pressure Maintenance Project in the North Vacuum Abo Pool, Lea County, New Mexico - The unit acreage should read 5,840 acres mentioned in paragraph 1 of the application, line 3, instead of 5,680 as previously amended.

2. Application for Approval of the North Vacuum Abo Unit Agreement in the North Vacuum Abo Pool, Lea County, New Mexico - In paragraph numbered 1, line 2, it should read 5,840 acres, rather than 5,680. Also, please add to the description under Township 17 South, Range 34 East, N.M.P.M., the following:

Section 2: S/2 SW/4
Section 11: N/2 NE/4

We appreciate your cooperation in this matter.

Best regards,

James E. Sperling

JES:jv

J. R. MODRALL
JAMES E. SPERLING
JOSEPH E. ROEHL
GEORGE T. HARRIS, JR.
DANIEL A. SISK
LELAND S. SEDBERRY, JR.
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JAMES P. SAUNDERS, JR.
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LAW OFFICES OF
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PUBLIC SERVICE BUILDING
P. O. BOX 2168
ALBUQUERQUE, NEW MEXICO 87103

JOHN F. SIMMS (1885-1954)
AUGUSTUS T. SEYMOUR
(1907-1965)

TELEPHONE 243-4511
AREA CODE 505

September 20, 1972

Mr. George Hatch
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Mobil Oil Corporation's Application for Authority to Institute a Pressure Maintenance Project in the North Vacuum Abo Pool, Lea County, New Mexico

Dear George:

Enclosed, please find a revised plat marked Exhibit "A" which I would appreciate your substituting for the previous Exhibit "A" which was submitted with the above-captioned application.

Thank you.

Best regards,

James E. Sperling

JES:jv

Enclosure

PROPOSED
NORTH VACUUM ABO UNIT
PRESSURE MAINTENANCE PROJECT

GENERAL DATA

Name of Formation: North Vacuum Abo

Depth of Formation: 8557'-8606' (Bridges-State Well #126)

PROPOSED INJECTION PROGRAM

Type of Injection	Total No. Inj. Wells	Total Volume Injected	Rate Per Well	Est. Pressure	Source of Injection Fluid
First 3 to 6 Months					
Fresh Water	34	14,000 BPD	400 BPD	3500 psi	Existing Vacuum water rights on Bridges-State in T17S, R34E
Second 3 to 6 Months					
1/2 Fresh Water	17	7,000 BPD	400 BPD	4000 psi	(Same as above)
1/2 Flue Gas	17	5,000,000 CFPD	295,000 CFPD	5000 psi	Flue gas from drivers on proposed Unit's compressors
Third 3 to 6 Months					
1/2 Flue Gas*		(S A M E A S A B O V E)			
1/2 Fresh Water*					

* Rotate injection wells of previous period.

Fourth 3 to 6 Months					
1/2 Fresh Water*		(S A M E A S A B O V E)			
1/2 Flue Gas*					

* Rotate injection wells of previous period.

EXHIBIT "

Case 4831

PROPOSED INJECTION PROGRAM (Continued)
Page No. 2

Type of Injection	Total No. Inj. Wells	Total Volume Injected	Rate Per Well	Est. Pressure	Source of Injection Fluid
Within First 2 Years					
1/2 Fresh Water	17	7,000 BOPD	400 BPD	5000 psi	Existing Vacuum water rights on Bridges-State in T-17S, R-34E
1/2 Flue Gas*	17	5,000,000 CFPD	295,000 CFPD	6000 psi	Flue gas from drivers on proposed Unit's compressors
Later in Project Life					
Mixed Fresh and Produced Water	34	14,000 BPD	400 BPD	5000 psi	Fresh water same as above. Abo produced water when, and if, i exists.

*Plus propane or other gas slug. Estimated 5-10M barrels per injection well.

JHSeerey/eg
9/7/72

Case 4981

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF MOBIL OIL CORPORATION FOR AUTHORITY TO INSTITUTE A PRESSURE MAINTENANCE PROJECT IN THE NORTH VACUUM ABO POOL, LEA COUNTY, NEW MEXICO

Case No. 4831

A P P L I C A T I O N

1. Mobil Oil Corporation hereby makes application for authority to inject fluids into the North Vacuum Abo Formation underlying the North Vacuum Abo Unit area containing 4,680 acres in Lea County, New Mexico. Attached to this Application as Exhibit "A" is a plat showing the location of the proposed injection wells and the location of all other wells within a radius of two miles from said proposed injection wells and the formation from which said wells are producing. The plat also indicates the lessees within said two mile radius.

2. Attached hereto as Exhibit "B" is the log of Applicant's Bridges State Well No. 171, which is a typical log of the wells in the area.

3. A diagrammatical sketch of the proposed injection wells showing pertinent information required by Rule 701 will be furnished to the Commission at the time of hearing.

4. Attached hereto as Exhibit "C" is pertinent information indicating the name and depth of the zone into which it is proposed to make injection and the kind of fluid and/or gas proposed to be injected into the Abo Formation and the anticipated volumes and source of proposed injection substances.

5. As indicated on Exhibit "A", it is proposed to inject the substances indicated on Exhibit "C" into the North Vacuum Abo Formation through 34 injection wells located in

Sections 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26 and 27, in Township 17 South, Range 34 East, N.M.P.M., Lea County, New Mexico.

6. Applicant seeks establishment of an administrative procedure whereby the Commission may authorize the completion of a second producing well on 80-acre proration units at unorthodox locations within the unit providing such wells are located no closer than 1780 feet to the outer boundary of the unit, nor closer than 10 feet to any quarter-quarter section subdivision inner boundary.

7. Applicant requests that an allowable formula be fixed by the Commission to provide for the maximum daily allowable for the unit not to exceed the total number of 80-acre proration units within the project area times the daily top unit allowable set for the North Vacuum Abo Pool with such unit allowable to be produced from any well or wells in the unit area in any proportion.

8. The Applicant requests that the project area be established as the total area within the North Vacuum Abo unit with provision that the project area may be expanded administratively upon request and the furnishing of satisfactory showing or justification in compliance with such conditions as the Commission may require.

9. That the granting of this Application will protect correlative rights and will result in the prevention of waste and will permit the recovery of otherwise unrecoverable hydrocarbon substances.

WHEREFORE, Applicant prays that this matter be set for hearing at the Examiner Hearing to be held September 27,

1972, and that following hearing the Commission issue its Order authorizing the injection of the substances at the locations as hereinabove set forth and further granting the requests as hereinabove set forth.

Respectfully submitted,

MOBIL OIL CORPORATION

By: MODRALL SPERLING ROEHL HARRIS & SISK

By: James E. Sperling

James E. Sperling, its attorneys
Post Office Box 2168
Albuquerque, New Mexico 87103

DRAFT

dr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

APPLICATION OF MOBIL OIL CORPORATION FOR A PRESSURE MAINTENANCE PROJECT, LEA COUNTY, NEW MEXICO.

CASE NO. 4831
Order No. R-4430-A

NUNC PRO TUNC

BY THE COMMISSION:

It appearing to the Commission that due to clerical error Order No. R-4430, dated October 27, 1972, does not correctly state the intended order of the Commission,

IT IS THEREFORE ORDERED:

(1) That Rule 10 on Page 6 of Order No. R-4430 should read in its entirety as follows:

" RULE 10. The Secretary-Director of the Commission is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of the North Vacuum-Abo Unit Area as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 460 feet to the outer boundary of 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 Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:"

(2) That this order shall be effective nunc pro tunc as of October 27, 1972.

DONE at Santa Fe, New Mexico, this _____ day of November, 1973.

DRAFT

GMH/dr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 4831

Order No. R-4430

APPLICATION OF MOBIL OIL
CORPORATION FOR A PRESSURE
MAINTENANCE PROJECT, LEA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 27, 1972, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this _____ day of October, 1972, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Mobil Oil Corporation, seeks authority to institute a pressure maintenance project in the North Vacuum-Abo Pool ~~in~~ its North Vacuum-Abo Unit Area ~~Lease~~, Lea County, New Mexico, by the injection of water into the Abo formation through 34 wells located in ~~sections~~ 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, and 27, Township 17 South, Ranges 34 ~~and 35~~ East, NMPM, Lea County, New Mexico.

~~(3) That the applicant feels such the~~

(3) That the applicant further seeks the designation of the project area and the promulgation of special rules and regulations governing said project including a provision for administrative approval for unorthodox locations for injection wells or producing wells.

(4) That initially the project area should comprise only the following-described area:

LEA COUNTY, NEW MEXICO
TOWNSHIP 17 SOUTH, RANGE 34 East, NMPM

Sec. 2: SW/4
Sec. 3: SE/4
Sec. 10: E/2
Sec. 11: S/2
Sec. 12: NE/4 and S/2
Sec. 13: N/2 and SW/4
Sec. 14: All
Sec. 15: E/2
Sec. 22: E/2
Secs. 23 and 24: All
Sec. 26: All
Sec. 27: E/2
~~Sec. 25~~: NW/4 and N/2 NE/4

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Sec. 19: W/2 NW/4

(5) That a pressure maintenance project, designated the Mobil North Vacuum-Abo Pressure Maintenance Project, comprising the above described area is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(6) That an administrative procedure should be established whereby said project area may be expanded for good cause shown, and whereby additional ~~wells~~ in the project area may be ~~converted to water injection~~. injection wells or producing wells upon approval of the supervisor, district 1 or 2 as to which district is appropriate.

(7) That special rules and regulations for the operation of the Mobil North Vacuum-Abo Pressure Maintenance Project should be promulgated and, for operational convenience, such rules should provide certain flexibility in authorizing the production of the project allowable from any well or wells in the project area in any proportion, provided that no well in the project area which directly or diagonally offsets a well on another lease producing from the same common source of supply should be allowed to produce in excess of top unit allowable for the North Vacuum-Abo Pool until such time as the well has experienced a substantial response to water injection. When such a response has occurred, the well should be permitted to produce up to two times top unit allowable for the North Vacuum-Abo Pool. Production of such well at a higher rate should be authorized only after notice and hearing.

IT IS THEREFORE ORDERED:

(1) That the applicant, Mobil Oil Corporation, is hereby authorized to institute a pressure maintenance project in the North Vacuum-Abo Pool ~~on~~ its North Vacuum-Abo Unit Area ~~Lease~~, Lea County, New Mexico, to be designated the Mobil North Vacuum Abo Pressure Maintenance Project, by the injection of ~~gas and~~ water into the Abo formation, through the following-described wells:

LEA COUNTY, NEW MEXICO
TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

OPERATOR	LEASE	WELL NO.	SECTION	LOCATION
Mobil	Bridges State	172	3	P
Mobil	"	166	10	H
Shell	State "VH"	1	10	P
Mobil	Bridges State	130 (a dual completion)	15	H
Mobil	"	144	15	P
Mobil	State "J"	9	22	H
Shell	~~Location~~	to be re-drilled	22	P
Mobil	Bridges State	157	27	H
Mobil	"	145	27	P
Mobil	"	148	11	N
Mobil	"	173	14	F
Mobil	"	171	14	N
Mobil	"	151 (a dual completion)	23	F
Mobil	State "KK"	1	23	N
Mobil	Bridges State	118	26	F
Mobil	"	153	26	N
Mobil	"	140	11	P

Mobil	"	125 (a dual completion)	14	H
Mobil	"	124 (a dual completion)	14	P
Mobil	"	128	23	H
Mobil	"	117 (a dual completion)	23	P
Mobil	"	96	26	H
Mobil	"	95 (a dual completion)	26	P
Mobil	"	150	12	H
Mobil	"	147 (a dual completion)	13	P
Mobil	"	120 (a dual completion)	13	N
Mobil	"	119 (a triple completion)	24	F
Mobil	"	109 (a triple completion)	24	N
Mobil	"	108 (a triple completion)	25	F
Mobil	"	161	12	N
Pennzoil	Mobil State	159	12	F
Shell	State "C"	169	13	H
		1	24	P
		2	24	H

~~TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM~~

~~(2) That the aforesaid water injection well shall be equipped with 2 3/8-inch tubing set in a packer, said packer being set at approximately _____ feet. Further, that the casing-tubing annulus shall be filled with an inert fluid and the annulus equipped with a pressure gauge to facilitate detection of leakage in the tubing or packer.~~

(3) That Special Rules and Regulations governing the operation of the Mobil North Vacuum-Abo Pressure Maintenance Project, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
MOBIL NORTH VACUUM-ABO PRESSURE MAINTENANCE PROJECT

RULE 1. The project area of the Mobil North Vacuum Abo Pressure Maintenance Project, hereinafter referred to as the Project, shall comprise the area described as follows:

LEA COUNTY, NEW MEXICO
TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Sec. 2: ~~SW~~/4
Sec. 3: SE/4
Sec. 10: E/2
Sec. 11: S/2
Sec. 12: NE/4 and S/2
Sec. 13: N/2 and SW/4
Sec. 14: All
Sec. 15: E/2
Sec. 22: E/2
Sec. 23 and 24: All
~~Sec. 24:~~
Sec. 25: NW/4 and N/2 NE/4
Sec. 26: All
Sec. 27: E/2

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Sec. 19: W/2 NW/4

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio or are shut-in for any of the following reasons: pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3 which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on a 80-acre proration unit shall be top unit allowable for the North Vacuum-Abo Pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3, shall be determined by a 24-hour test at a stabilized rate of production, which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Commission Rule 502 I (a) and the limiting gas-oil ratio (2,000 to 1) for the pool shall be waived during such tests. The project operator shall notify all operators offsetting the well, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of the offsetting operators and the Commission, if they so desire.

RULE 7. The basic allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the pool, whichever is less. Wells capable of producing more than top unit allowable may also receive transfer allowable, provided however, that no producing well in the project area which directly or diagonally offsets a well on another lease producing from the same common source of supply shall receive an allowable or produce in excess of two times top unit allowable for the pool. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the pool.

RULE 8. ~~Each month~~ Every four Each month the project operator shall, ~~within three days after the normal unit allowable for Southeast New Mexico has been established,~~ submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total project allowable based upon the pool's depth bracket allowable and the market demand. The aforesaid Pressure Maintenance Project

Each month project operator shall submit

Operator's Report shall be filed in lieu of Form C-120 for the Project.

RULE 9. The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the Project for the next ~~month~~ succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells in the Project in any proportion except that no well in the Project which directly or diagonally offsets a well on another lease producing from the same common source of supply shall produce in excess of two times top unit allowable for the pool.

RULE 10. ~~The conversion of producing wells to injection, the drilling of additional wells for injection~~ or production ~~and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission~~. To obtain such approval, the project operator shall file proper application with the Commission, 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 ~~injection~~ well, all wells within the project area, and offset operators, locating wells which offset the project area.

(2) A schematic drawing of the proposed ~~injection~~ well which fully describes the casing, tubing, perforated interval, and depth, ~~showing that the injection of gas or water will be confined to the~~ formation.

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

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

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

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

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

SUMMARY OF PROPOSED INJECTORS
NORTH VACUUM ABO UNIT

OPERATOR	LEASE	WELL NO.	SECTION	LOCATION
Mobil	Bridges State	172	3	P
Mobil	"	166	10	H
Shell	State "VH"	1	10	P
Mobil	Bridges State	130	15	H
Mobil	"	144	15	P
Mobil	State "J"	9	22	H
Shell	Location	Location	22	P
Mobil	Bridges State	157	27	H
Mobil	"	145	27	P
Mobil	"	148	11	N
Mobil	"	173	14	F
Mobil	"	171	14	N
Mobil	State "KK"	151	23	F
Mobil	Bridges State	1	23	N
Mobil	"	118	26	F
Mobil	"	153	26	N
Mobil	"	140	11	P
Mobil	"	125	14	H
Mobil	"	124	14	P
Mobil	"	128	23	H
Mobil	"	117	23	P
Mobil	"	96	26	H
Mobil	"	95	26	P
Mobil	"	150	12	N
Mobil	"	147	13	F
Mobil	"	120	13	N
Mobil	"	119	24	F
Mobil	"	109	24	N
Mobil	"	108	25	F
Mobil	"	161	12	H
Mobil	"	159	12	P
Mobil	"	169	13	H
Pennzoil	Mobil State	1	24	H
Shell	State "C"	2	24	P

 Request, Hale

feasible to conduct a salvage fluid injection operation in the Upper Penn and Middle Penn reservoirs.

In summary, Mobil Oil Corporation respectfully asks the Commission for the following:

1. Approval of the North Vacuum Unit Agreement.

2. Approval of the plan of operation to inject fluids into the Abo formation through the 34 wells described in Exhibit No. 11.

3. An allowable formula to be fixed by the Commission to provide for a maximum daily unit allowable not to exceed the number of 80-acre proration units times the daily top unit allowable set for wells in the North Vacuum Abo Pool. Such unit allowable may be produced from any well or wells on the project area in any proportion.

4. Establishment of an administrative procedure whereby the Commission may authorize the completion of a second producing well on the 80-acre proration units at unorthodox locations within said Unit, providing such wells are located no closer than 1,780 feet from the outer unit boundary nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary. In explanation of this, the 80-acre spacing and the large pattern areas (160 acres) coupled with the low permeability of the reservoir and its effect on project response may make it necessary to infill drill the producers in certain areas of the project.

5. That the project area be fixed as the total area within the boundaries of the said North Vacuum Abo Unit as described in this application,

Request Data

with further provisions that the project area may be expanded administratively by the Commission upon satisfactory meeting conditions set forth by the Commission.

A. J. Hankinson
Project Coordinator

AJH/eg
9/14/72