Case No.

2048

Application, Transcript,
Small Exhibits, Etc.

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. 2048
Order No. R-1757

APPLICATION OF RICE ENGINEERING
& OPERATING, INC., FOR A SALT
WATER DISPOSAL WELL IN SECTION
5, TOWNSHIP 12 SOUTH, RANGE 38
EAST, GLADIOLA POOL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on August 10, 1960, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 25th day of August, 1960, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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 seeks an order authorizing the disposal of produced salt water through its Gladiola SWD Well No. H-5, formerly known as the Sinclair Kendrick Estate Well No. 3, located 1980 feet from the North line and 660 feet from the East line of Section 5, Township 12 South, Range 38 East, Gladiola Pool, Lea County, New Mexico, with the proposed injection interval in the Devonian formation from 12,223 feet to 12,500 feet.

(3) That the applicant proposes to complete the said disposal well as follows: 13 3/8-inch casing set at 303 feet with cement circulated to the surface, 8 5/8-inch casing set at 4512 feet with cement circulated to the surface, 5 1/2-inch casing set at 12,014 feet and cemented to 11,317 feet, a 4 1/2-inch liner with the top at 11,953 and set at 12,223, with injection to be through the 5 1/2-inch casing and 4 1/2-inch liner.

(4) That inasmuch as there are known corrosion problems in the subject area, the injection of produced salt water in the said

Gladiola SWD Well No. H-5 should be through tubing and the annular space should be kept filled with sweet oil, naptha, or kerosene.

(5) That the volumes of salt water to be disposed of in the Gladiola Pool are already very large and the applicant needs to utilize the subject disposal well immediately. Thus injection through the casing should be permitted for a maximum of 90 days.

(6) That so long as the above-mentioned protective measures are utilized, the disposal of produced salt water into the subject well will not jeopardize the production of oil, gas, or fresh water in the area.

IT IS THEREFORE ORDERED:

(1) That the applicant be and the same is hereby authorized to dispose of produced salt water into the Devonian formation through its Gladiola SWD Well No. H-5, formerly known as the Sinclair Kendrick Estate Well No. 3, located 1980 feet from the North line and 660 feet from the East line of Section 5, Township 12 South, Range 38 East, Gladiola Pool, Lea County, New Mexico, with the proposed injection interval from 12,223 feet to 12,500 feet.

PROVIDED HOWEVER, That within 90 days after the injection of salt water is commenced in the subject well, tubing shall be installed and injection thereafter shall be through such tubing. Further, after the installation of tubing, the annular space shall be kept filled with sweet oil, naptha, or kerosene.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

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

esr/

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

August 25, 1960

COPY

Kellahin and Fox
Attorneys at Law
P. O. Box 1713
Santa Fe, New Mexico

Attention: Mr. Jason W. Kellahin

Gentlemen:

Enclosed herewith is one copy of Order No. R-1757, entered on behalf of your client, Rice Engineering & Operating, Inc., in Case No. 2048.

You will note that this order provides that the applicant, Rice Engineering, may convert the Sinclair Kendrick Estate Well No. 3, located in the SE/4 NE/4 of Section 5, Township 12 South, Range 38 East, to salt water disposal in the Devonian formation and to utilize same as its Gladiola SWD Well No. M-5 without tubing for a maximum of 90 days after conversion.

It is noted that during the past year or so, two other wells, the Gladiola SWD Well No. F-7 and the Gladiola SWD Well No. G-8, have been authorized for salt water disposal in the Devonian formation through the casing.

Recent information indicates that a serious corrosion problem is developing, and that prudent operation plus the prevention of waste and the protection of correlative rights dictates that tubing should be installed in these wells.

It is for this reason that the 90-day period of operation without tubing is permitted the proposed SWD Well No. 3, that is, to provide a high capacity casing disposal well while the first two wells are shut-down for installation of tubing.

OIL CONSERVATION COMMISSION
P. O. BOX 871
SANTA FE, NEW MEXICO

-2-

August 25, 1960

Hollahin and Fox
Attorneys at Law
Santa Fe, New Mexico

It is expected that all three of the disposal wells will be tubed, and the annulus between the tubing and the casing filled with some non-corrosive fluid within 90-days after the SWD Well No. 3 is put on disposal.

Very truly yours,

A. L. PORTER, Jr.,
Secretary-Director

ALP/DSN/esr
Enclosure

cc: Mr. W. G. Abbott
Rice Engineering & Operating, Inc.
P. O. Box 1142
Hobbs, New Mexico

COPY

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 8-22-60

CASE NO. 2048 HEARING DATE 8-10-60

My recommendations for an order in the above numbered case(s) are as follows:

1, Grant Rice's request for SWD well #H-5 SE NE Sec 5, 12S-38E (a conversion from a TA well of Sinclair + Kendrick Estate #3)

2. Allow SWD to be disposed of thru the ~~casing~~ 5½ + 4½ OD casing for a period of 90 days after the date of the order or Dec 1, 1960. after which time the well must be tubed with non-corrosive oil in the annulus.

Staff Member

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. 1678
Order No. R-1412

APPLICATION OF RICE ENGINEERING
AND OPERATING, INC., FOR AN ORDER
AUTHORIZING A SALT WATER DISPOSAL
WELL IN SECTION 7, TOWNSHIP 12
SOUTH, RANGE 38 EAST, LEA COUNTY,
NEW MEXICO

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on May 20, 1959, at Santa Fe, New Mexico, before E. J. Fischer, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 5th day of June, 1959, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, E. J. Fischer, 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, Rice Engineering and Operating, Inc., is the operator of the temporarily abandoned Gulf Oberholtzer Well No. 2, located 1980 feet from the North line and 2310 feet from the West line of Section 7, Township 12 South, Range 38 East, NMPM, Lea County, New Mexico.

(3) That the applicant proposes to recomplete the said Gulf Oberholtzer Well No. 2 as a salt water disposal well and inject produced salt water into the Devonian formation below the water-oil contact in the interval from 12,206 feet to 12,400 feet.

(4) That disposal of salt water in the said Gulf Oberholtzer Well No. 2 will not jeopardize the production of oil, gas, or fresh water in the area and is consonant with sound conservation practices.

IT IS THEREFORE ORDERED:

(1) That the applicant, Rice Engineering and Operating, Inc., be and the same is hereby authorized to utilize the Gulf Oberholtzer Well No. 2 (to be called the Gladiola SWD Well No. F-7), located 1980 feet from the North line and 2310 feet from the West line of Section 7, Township 12 South, Range 38 East, NMPM, Lea County, New Mexico, for the purpose of disposing of produced salt water into the Devonian formation below the water-oil contact in the interval from 12,206 feet to 12,400 feet.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

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

S E A L

vem/

Case 2048

THE DIA-LOG COMPANY

COMPANY - RICE ENGINEERING & OPERATING, INC.

LEASE & WELL - GLADIOLA SWD F-7

On November 7, 1959, the Dia-Log multi-step caliper was run on this well. There were two gauges run. They were the 7/32" and 3/16" remaining wall. From 9800' to T.D. the weight of the 5½" casing is 20# per ft. The thickness of the metal is .361 to (allowable tolerance) .316. The 7/32 gauge (.219) (60.6 to 69.3%) found no pipe less than this setting. From the surface to 9800' the weight of the pipe is 17# per ft.' The thickness of the metal is .304 to (allowable tolerance .266. The 7/32 (.219), thinking in percentage of original wall thickness, is 72.% to 82.4%. On this run it would appear that the pipe with thinner spots are scattered uniformly over the full 9800'. There were 151 joints that were -7/32 and 92 joints that were +7/32. The type of corrosion could be called pin point in that each pit is singular and individual. A majority of the joints that were labled -7/32" had either one or two pits, a number had numerous pits. In the light of the results found on the 3/16" remaining wall run which were negligible it would appear that the pitting of the pipe was more than initial but not severe. The 3/16" run found two places less than this setting, they were at 5664' and 9585'. Since these two places were in collars they do not carry the full detrimental effect as if they were removed from the collar some distance. The line of thought, according to our experience, as a result of this log; we would believe that under normal conditions that this string of pipe would be good for some extended time.

On 8-12-60, The Dia-Log multi-step caliper was again run on this same well. There were 3 gauges run. They were the 7/32", 3/16", and 1/8" remaining wall. Again as before from 9800' to T.D. in the 20# per ft. pipe, the 7/32" remaining wall run did not show any pits. In the light of findings in the lighter pipe, it could be that if a 1/4" or 9/32" run had been made, pits would have been found. This is purely guessing. From the surface to 9800', in the 17# pipe, the 7/32" remaining wall run indicated that with the exception of about a dozen joints, all of the pipe was less than this setting. The 3/16" gauge was then run. On this run 116 joints were found to be less than this setting. These pitted joints are mixed over the total 9800', however, the joints with numerous pits are predominately in the upper part of the string. Comparing the log run 11-7-59 and the one now, it is fairly obvious that there is more pipe that is less than 3/16" remaining wall now, than there was pipe less than 7/32" then. This being true the general level of pipe thickness has been diminished by more than 1/32". In the light of the results found on the 1/8" remaining wall run, it might be more fitting to set the general level at some 1/16" less with pin

points as indicated on chart even more so. The 1/8" run showed 4 individual, singular pits. Since their depths were scattered as shown; 2355', 2530', 3755' and 6050', it would indicate that the deterioration of the string is uniform. The total log does not show that to be true. It indicates that there are more pits in the top part, thought there is no spot in that area with a -1/8" reading. Since considerable scale was cleaned off of this pipe in the upper part of well before the caliper tool could be run, it is just possible that the deeper pits, if any, were filled with hard scale. As no run was made with a remaining wall setting of less than 1/8", the depth of these 4 pits are not truly known. They could be anywhere between just thinner than 1/8" to approaching 0. The early log indicated the pipe was reasonably good. During the time between the first and second log considerable metal was lost due to corrosion. It seems fitting to estimate that if loss of metal continues at the same rate that the life expectance of the string of pipe is of short duration.

RICE Engineering & Operating, Inc.
MAIN OFFICE OCC
Post Office Box 1142 Telephone EXpress 3-9174
HOBBS NEW MEXICO

August 19, 1960

File Case No. 2048

Mr. Dan Nutter
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Sir:

Re: Gladiola Salt Water Disposal System - Casing Caliper Survey

Attached are the two casing caliper surveys run by Dia-Log on our SWD F-7 in the Gladiola Pool. Also attached is a report submitted to us from Dia-Log. The first survey was run November 7, 1959, and the second survey performed August 12, 1960. Between these dates over 1 million barrels of water have been disposed in this well by gravity.

To summarize these surveys, the following is a list of the joints classified according to remaining wall thickness for the two surveys:

| Wall Gauges | Nov.7'59 | Aug.12'60 |
|---|---|---|
| More than 7/32" remaining wall | 137 jts. | 61 jts. |
| Less than 7/32" but more than 3/16" remaining wall | 155 jts. | 116 jts. |
| Less than 3/16" but more than 1/8" remaining wall | None | 108 jts. |
| Less than 1/8" remaining wall | not run | 7 jts. |
| | 292 jts. | 292 jts. |

Because of the corrosion present, we are recommending to the Gladiola SWD System Committee that tubing be run in the SWD F-7, SWD G-8, and the proposed SWD H-5. (Case No. 2048 held August 10, 1960).

Because of the monies involved - over $24,000 per well - it is necessary to secure Committee approval and then purchase the plastic coated tubing and install same. It was previously

discussed with the Committee that since surface corrosion was evidenced in the Gladiola Pool, future tubing installation would be probable; and immediate approval of our recommendations is expected.

In order that the wells can handle the 24,000 barrels of water per day presently produced into the salt water disposal system, the SWD H-5 is needed immediately so that this well can be utilized for disposal when SWD F-7 and SWD G-8 are tubed. At the present time the combined capacity of the two disposal wells is 1000 barrels per hour. When these wells are tubed, the capacity will be approximately halved.

Therefore, we request that the New Mexico Oil Conservation Commission approve the order in Case 2048 for disposal in the SWD H-5.

Respectfully submitted,

RICE ENGINEERING & OPERATING, INC.

W. G. Abbott

W. G. Abbott
Division Manager

WGA/ai
Attachments

Case 2048

RICE *Engineering & Operating, Inc.*

Post Office Box 1142 Telephone EXpress 3-9174
HOBBS, NEW MEXICO

OIL CONSERVATION COMM. OFFICE CCC
1960 JUL 11 AM 8:38

July 7, 1960

Mr. A. L. Porter
P. O. Box 871
Santa Fe, New Mexico

Dear Pete:

Since the New Mexico Oil & Gas Association subcommittee of which I am a member is meeting August 16th in Santa Fe, I would prefer that this application for the Gladiola Pool Sinclair Kendrick Estate No. 3 SWD Well ( attached ) be placed on the regular hearing docket for August 17th.

I enjoyed visiting with you yesterday and hope to see you again in August.

Sincerely,

Bill

W. G. Abbott
Rice Engineering & Operating, Inc.

WGA/ai
Attachment

Docket Mailed
July 26, 1960
gr

Case 2048

RICE *Engineering & Operating, Inc.*

Post Office Box 1142 Telephone EXpress 3-9174

HOBBS, NEW MEXICO

July 6, 1960

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Gentlemen:

Re: Rule 701 - Permit for Injection of Water (Salt Water Disposal)

Rice Engineering & Operating, Inc., of Hobbs, New Mexico, hereby applies for a hearing to be held before the New Mexico Oil Conservation Commission for the purpose of securing a permit under Rule 701 to recomplete the Sinclair Kendrick Estate No. 3 Well as a salt water disposal well. The subject well is located on the Sinclair Kendrick Estate Lease in Section 5, Township 12 South, Range 38 East, Gladiola Pool, Lea County, New Mexico. The proposed disposal well will be known as the Rice Engineering & Operating, Inc., Gladiola SWD Well H-5.

Rice Engineering & Operating, Inc., further deposes and states the following:

A. That said well is located 1980 feet from the North line and 660 feet from the East line of Section 5, Township 12 South, Range 38 East, N.M.P.M. (See Exhibit A).

B. That said well was drilled and completed as a marginal producer October 9, 1957 by Sinclair Oil & Gas Company and is now temporarily abandoned.

C. That said well by agreement between Rice Engineering & Operating, Inc., and Sinclair Oil & Gas Company shall be utilized by the Gladiola Salt Water Disposal System as a disposal well.

D. That said well has 13-3/8" OD casing set at 303 feet, 8-5/8" OD casing set at 4512 feet, and 5-1/2" OD casing set at 12,014 feet. (See Exhibit "B").

E. That said well will be completed as a disposal well in the lower Devonian by (1) drilling to a new total depth of 12,500 feet; (2) setting a 4-1/2" OD liner at 12,223 feet; (3) disposing in the open hole interval from 12,223 to 12,500 feet.

F. That the salt water to be injected is produced from the Gladiola Devonian and Wolfcamp Pools.

G. That the volume of salt water to be disposed shall be approximately 15,000 barrels per day.

Therefore, Rice Engineering & Operating, Inc., requests that the Secretary of the New Mexico Oil Conservation Commission set a date for this application to be heard, and after said hearing to grant this permit to dispose of salt water in the Sinclair Oil & Gas Company Kendrick Estate No. 3 Well.

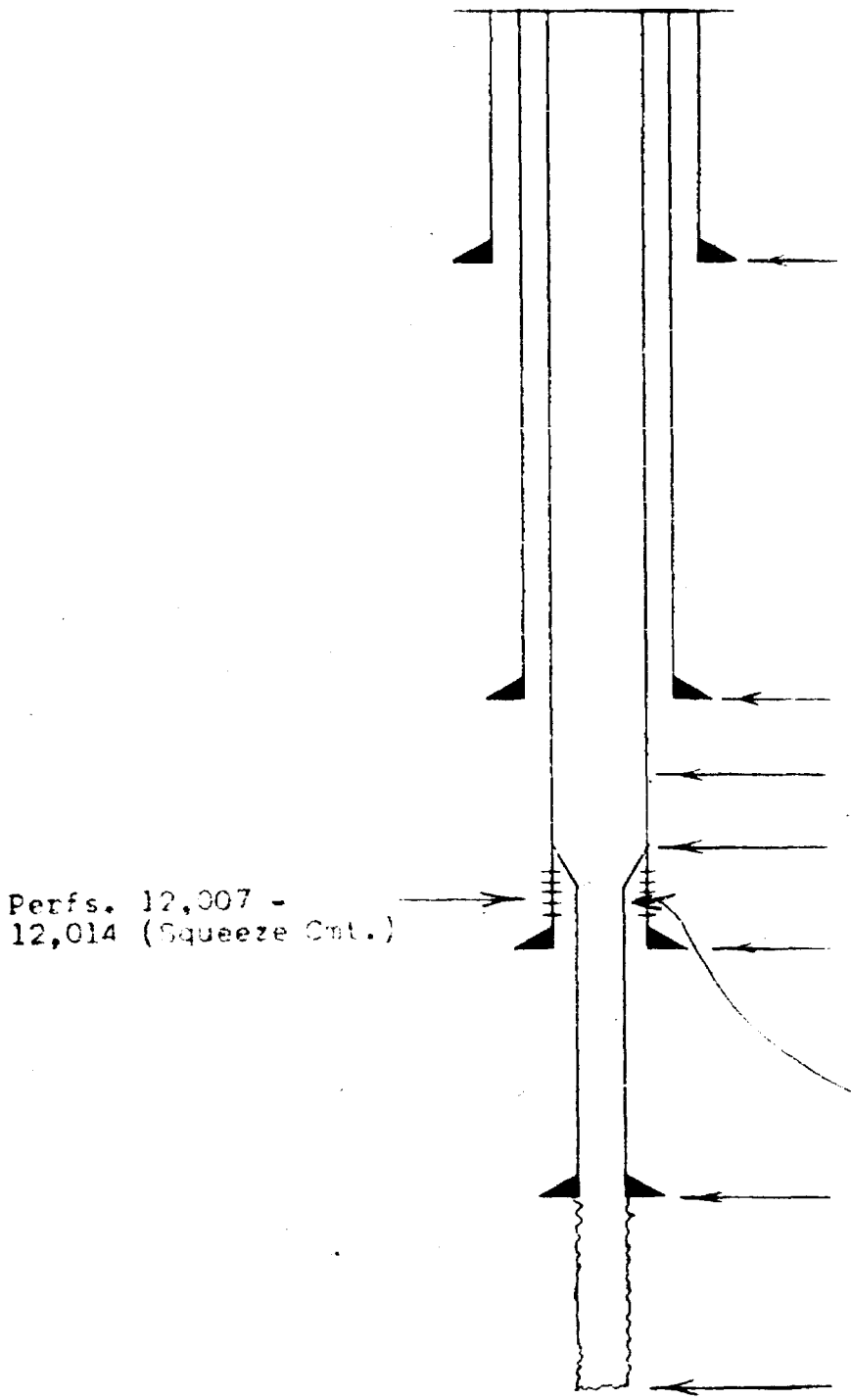
Respectfully submitted,

RICE ENGINEERING & OPERATING, INC.

By W. G. Abbott
W. G. Abbott
Division Manager

DGS/ai
Attachments:
Exhibit "A"
Exhibit "B"

ELEVATION 3967' (G.L.)



13-3/8", 36.6# CSA
303' Cmt. Circ.

11,317
4512
6805

8-5/8", 32# & 24#
J-55 CSA (4512),
Cmt. Circ.
Top Cement Behind 5½"
Csg. (11,317'
Top 4½", 12.6# Hydril
Liner 11,963.

Perfs. 12,007 -
12,014 (Squeeze Cmt.)

5½", 20# N-80, X Line,
17 & 20# N-80, CSA
12,014' w/100 sax

12014
11953
51'

4½" 12.6# Hydril Liner
Cmt @ 12,223

TD 12,500'

| | | | | |
|---|---|---|---|---|
| DWN D.B. | June 27-60 | EXHIBIT "B"<br>GLADIOLA (SWD WELL H-5)<br>PROPOSED RECOMPLETION | | SCALE<br>None |
| | | Rice Engineering & Operating, Inc.<br>Hobbs, New Mexico | | DWG NO.<br>A-102 |

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
August 10, 1960

EXAMINER HEARING

IN THE MATTER OF:

Application of Rice Engineering & Operating, Inc. for an order authorizing a salt water disposal well. Applicant, in the above-styled cause, seeks an order authorizing the disposal of produced salt water through its Gladiola SWD Well No. H-5, formerly known as the Sinclair Kendrick Estate Well No. 3, located 1980 feet from the North line and 660 feet from the East line of Section 5, Township 12 South, Range 38 East, Gladiola Pool, Lea County, New Mexico, with injection to be in the Devonian formation in the interval from 12,223 feet to 12,500 feet.

Case 2048

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case 2048.

MR. PAYNE: Application of Rice Engineering & Operating, Inc. for an order authorizing a salt water disposal well.

MR. KELLAHIN: If the Commission please, Jason Kellahin, Kellahin and Fox, Santa Fe, representing the applicant. We will have one witness, Mr. Abbott.

(Witness sworn.)

MR. UTZ: Any other appearances in this case?

MR. ABBOTT: No.

W. G. ABBOTT

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A My name is W. G. Abbott.

Q By whom are you employed and in what position, Mr. Abbott?

A I'm a Division Manager for Rice Engineering & Operating, Inc. at Hobbs, New Mexico.

Q Have you testified before the Oil Conservation Commission as a petroleum engineer and had your qualifications accepted?

A Yes, sir.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. UTZ: Yes, sir, they are.

Q Are you familiar with the application in Case 2048?

A Yes, sir.

Q Would you state briefly what Rice Engineering proposes under this application?

A We propose to recomplete the Sinclair Kendrick Estate No. 3 Well in the Gladiola Pool, Lea County, New Mexico, as a salt water disposal well. This will then be called Gladiola SWD

Well H-5. This well is located 1980 feet from the North line and 660 feet from the East line of Section 5, 12, 38. It was originally completed as a marginal producer by Sinclair October 9th, 1957, and is now temporarily abandoned.

(Rice Engineering's Exhibit A, marked for identification.)

Q Referring to what has been marked as Exhibit A, would you discuss the information shown on that exhibit?

A Exhibit A is a map of this Gladiola Pool, and on this map we have drawn in red a half mile radius circle around the Sinclair Kendrick Estate No. 3 Well and also there's a trace of a cross section $AA_1$ marked on this exhibit.

Q Are there other salt water disposal wells in the area of the proposed disposal well?

A Yes, sir. We have previously recompleted two wells, salt water disposal wells. They are SWD F-7, which was previously the Gulf Oberholtzer No. 2 and the SWD G-8 which was previously the Lowe Oberholtzer No. 2. Those are marked by symbols on this plat.

Q Are both of those wells being utilized for disposal of salt water as proposed in this application?

A Yes, sir, they are.

(Rice Engineering's Exhibit B marked for identification.)

Q Now, referring to what has been marked as Exhibit B,

will you discuss that exhibit, please?

A Exhibit B is a diagram showing the casing program and the proposed workover program on this well. It shows the 13-3/8 inch surface pipe set at 303 feet with the cement circulated. The 8-5/8 inch set at 4512 feet, and also the cement is circulated behind that string. The 5-½ inch casing is set at 11,317 feet. We propose to set a liner, a 4-½ inch hydril liner at 11,953 feet. The top of it, and the bottom of the liner, will be at 12,223 feet. We'll deepen the well to a new total depth of 12,500 feet. Running this liner will protect the oil-producing interval in the Devonian zone.

Q Will that liner be cemented in?

A Yes, sir.

Q According to Exhibit B, you propose to inject water through tubing, is that correct?

A No, sir. At the present time we do not propose to use tubing, although we plan to run a caliper survey on this casing before we inject any water and then re-examine it later to see if there's any evidence of corrosion.

Q Is this the same type of completion which is used in the other two disposal wells in the vicinity, which you mentioned?

A Yes, sir.

Q You are not using tubing in those wells, is that correct?

A No, sir. At the present time we are, in fact we have it



set up to run another caliper survey tomorrow on our SWD F-7. That's the West well in the system.

Q Are there any fresh water zones in this area?

A The fresh water, there are some fresh water zones above the depth that the surface pipe is set.

Q That would be above the 303 feet?

A Yes, sir.

Q In your opinion, is this type of completion adequate to prevent any damage to those fresh water zones?

A Yes, it is.

Q Is it adequate to prevent any encroachment of salt water in any producing zones that might be encountered?

A Yes, sir, we believe it is.

(Rice Engineering's Exhibit C marked for identification.)

Q Now, referring to what has been marked as Exhibit C, will you discuss that exhibit?

A Exhibit C shows this cross section that was previously marked on Exhibit A as $AA_1$. It's more or less a North-South cross section running from our SWD G-8 up North through the proposed SWD H-5 and North to the Lowe Markham State No. 1 Well. This exhibit shows the top of the Devonian in red and also the producing interval of the oil wells in red. In green we show the proposed injection interval of the SWD H-5.

Q Also in green is shown the present injection interval of your SWD D-8, is that right?

A Yes, and we have also marked the oil-water contact on this exhibit as minus 8150.

Q All of these wells are producing from the Devonian formation as shown on this cross section?

A Yes, sir.

Q That is the same formation which you propose to inject water?

A Yes.

Q What precautions will you take to insure that no oil will be lost as a result of this injection?

A Well, the first thing we do, we set the liner and then when we drill out to total depth, after we set the liner, we propose to take a drill stem test. With that drill stem test we can determine if there is any oil present. We have previously done that to the other two disposal wells and also in that drill stem test we recorded the bottom hole pressure and we have noticed that this producing interval has higher bottom hole pressure corrected to the field datum than the producing interval, and although we think there's communication between that and the producing interval, it's not direct communication.

Q Now, referring to what has been marked as Exhibit D, would you discuss that exhibit?

(Rice Engineering's Exhibit D marked for identification.)

A Exhibit D shows the completion interval and all the pertinent data on the wells within this half-mile radius circle that's drawn on Exhibit A. It shows the operator of the lease, the well number, the completion interval subsea, and the completion zone.

Q Mr. Abbott, in your opinion will the injection of salt water, as you propose in this disposal well, cause any damage to these producing wells?

A No, sir, it won't.

Q Will it cause any damage, in your opinion, to any other wells that may be in the area?

A No, sir.

Q The subject well is the property of Sinclair Oil and Gas Company, is it not?

A That's right.

Q Do you have an agreement with them for the utilization of the well?

A Yes, sir.

Q What is the source of the water proposed to be injected in this well?

A The water will be the Devonian waters that are produced in the Gladiola Pool. I think there is some Wolfcamp water, but



it's very small.

Q Are the Devonian wells making any quantities of water?

A Yes, sir, they are making quite a large volume of water.

Q What volume of water do you propose to inject into this well?

A We have shown on our application approximately 15,000 barrels per day.

Q In your opinion, will the formation take that volume of water?

A Yes, sir.

Q Will the disposal well, as you propose to complete it, handle that volume of water?

A Yes, it will.

Q Is that one of the reasons you prefer not to use a tubing method of injection?

A That's right. It's pertinent that we get rid of the water at the present time and if we find that there is corrosion in the 5-½ inch casing, then it will be necessary to run a tubing string that would cut down the capacity of the well and it would be necessary to have more disposal wells.

Q Are you willing to make any tests which may be required by the Commission to assure that no leakage is occurring in this well?

A Yes, sir.



Q Do you have anything further to add to your testimony?

A No, I believe that's all.

Q Were Exhibits A, B, C and D prepared by you or under your direction and supervision?

A Yes, sir.

MR. KELLAHIN: I would like to offer in evidence Exhibits A, B, C and D.

MR. UTZ: Without objection, Exhibits A through D will be entered into the record.

MR. KELLAHIN: That's all the questions I have, Mr. Utz.

CROSS EXAMINATION

BY MR. UTZ:

Q What was the number of the Gulf Oberholtzer well?

A That's the Oberholtzer No. 2.

Q What do you call it now? A SWD F-7.

Q F?

A Yes. We name the wells for the unit letter in the section and then the section number.

Q Are the F-7 and G-8, were both approved after hearing, were they not?

A Yes, sir.

Q They're completed just like this proposal?

A Yes, they are.

Q How old are those two wells?

A I believe the F-7, that's the first well that we completed, I think it's around nine months.

Q How about the G-8?

A The G-8 I believe is around five months.

Q Do you think this type of completion is as practical and foolproof and safe as one using tubing?

A No, we don't think so. That is why we want to determine if there's any corrosion evidenced in the casing, because we realize that if something happened to the disposal well, it would be very costly for the operators and also we don't want to have anything happen to the producing zone.

Q Why are you proposing this type of completion then if you don't think it's as safe as the other type?

A We propose to run these tests periodically and if there is any evidence of corrosion, then we will run the tubing strings. We need the capacity, the full capacity, the 5-½ inch casing at the present time, but will determine in a very short time if there is any corrosion in the F-7 well. If there is, well, we will run a tubing string to protect the casing.

Q The operators participate in the cost of these completions, do they not?

A Yes, sir.

Q That might be the reason?

A Yes. Well, a tubing string for one of these wells would

cost approximately $10,000, but if there is damage to the casing we will recommend that we run this tubing.

Q How effective is a caliper survey as far as finding pits and pot marks?

A We think it's fairly good, especially where you run a caliper survey and then come back in a certain length of time and run another one and then we can compare the two and the service companies can work with us to determine if there's any corrosion in the casing.

Q Can't a caliper survey miss small holes quite easily?

A It could miss some of them, but they're making them so foolproof that we believe it's the best method devised yet to study the inside of the casing.

Q Does this tell you anything about the outside of the casing?

A No, sir.

Q I believe you testified that you would be willing to run any tests required by the Commission. Upon completion of this well, would you be willing, provided the Commission approves it, would you be willing to pressure test the casing at 2,000 pounds surface pressure with the hole full of water?

A If that doesn't exceed the test on the casing we would, yes. We plan to test the casing with a thousand pounds for thirty minutes after we cement the liner and before we drill out

to determine if we have a good liner job.

Q What do you mean doesn't exceed the test of the casing, you mean the 5-½ inch wouldn't test that much?

A Well, that's with a hole full of fluid, that's a tremendous pressure to exert on the bottom hole.

Q What is the test strength, is 5-½ inch twenty pound?

A It's seventeen and twenty pound. It should stand that pressure.

Q New casing will stand over 4,000 pounds, won't it?

A Yes.

Q So, at 12,000 feet you have approximately 6,000 pounds of pressure plus the 2,000 pounds above would be 8,000 pounds, wouldn't it?

A Yes.

Q That ought to be a pretty good test. Now, between the top of the 4-½ liner and the bottom of the 5-½ casing, you have a cement column of 51 feet, is that correct, the liner is 11,953?

A Yes.

Q The bottom of the 5-½ is 12,014?

A Yes.

Q How much space will there be in the annulus? In other words, the thickness of the cement column between the 5-½ and the 4-½?

A It's very thin. I don't remember what it is. It is a

very thin sheath right inside the casing between the casing and the O.D. of the liner. We propose to test that for thirty minutes and if there's any drop in pressure, we propose to squeeze the top of the liner.

Q You are going to circulate the cement on the 4-½?

A Yes, sir.

Q So that is probably potentially the weakest spot in this completion, is it not?

A Yes.

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

MR. PAYNE: Yes, sir.

BY MR. PAYNE:

Q Mr. Abbott, as I understand your testimony, the injection interval is below the completion interval in any of the adjacent wells, is that right?

A Yes, sir.

Q Is this well currently capable of producing?

A No, sir, not commercially.

Q So that conversion of it to an injection well will not leave oil in the ground that would otherwise be recovered?

A No, sir.

Q Do you propose to inject by gravity?

A Yes, sir.

Q How old is the casing in this well?

A Approximately three years old, I believe.

Q When the well was completed, new casing was used?

A Yes, sir.

MR. PAYNE: Thank you.

MR. UTZ: Mr. Porter.

BY MR. PORTER:

Q How much water do you plan to dispose of in this well?

A Some days it runs off a thousand barrels an hour disposing in the two wells we have at present.

MR. UTZ: A thousand barrels an hour?

A Yes.

Q You run above 20,000 barrels a day?

A In the two wells.

MR. UTZ: This well has been temporarily abandoned for some time, hasn't it?

A Yes, I don't know, I think it produced a total of 889 barrels of oil. I think it was abandoned shortly after completion.

Q (By Mr. Porter) It would take to pay it out?

A No.

MR. UTZ: Any other questions? If not, the witness may be excused.

(Witness excused.)

MR. UTZ: Are there any statements in this case? The case will be taken under advisement.

STATE OF NEW MEXICO )
: SS
COUNTY OF BERNALILLO )

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 11th day of August, 1960.

Ada Dearnley
Notary Public-Court Reporter

My commission expires:

June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2045 heard by me on Aug. 10, 1960.

Examiner
New Mexico Oil Conservation Commission

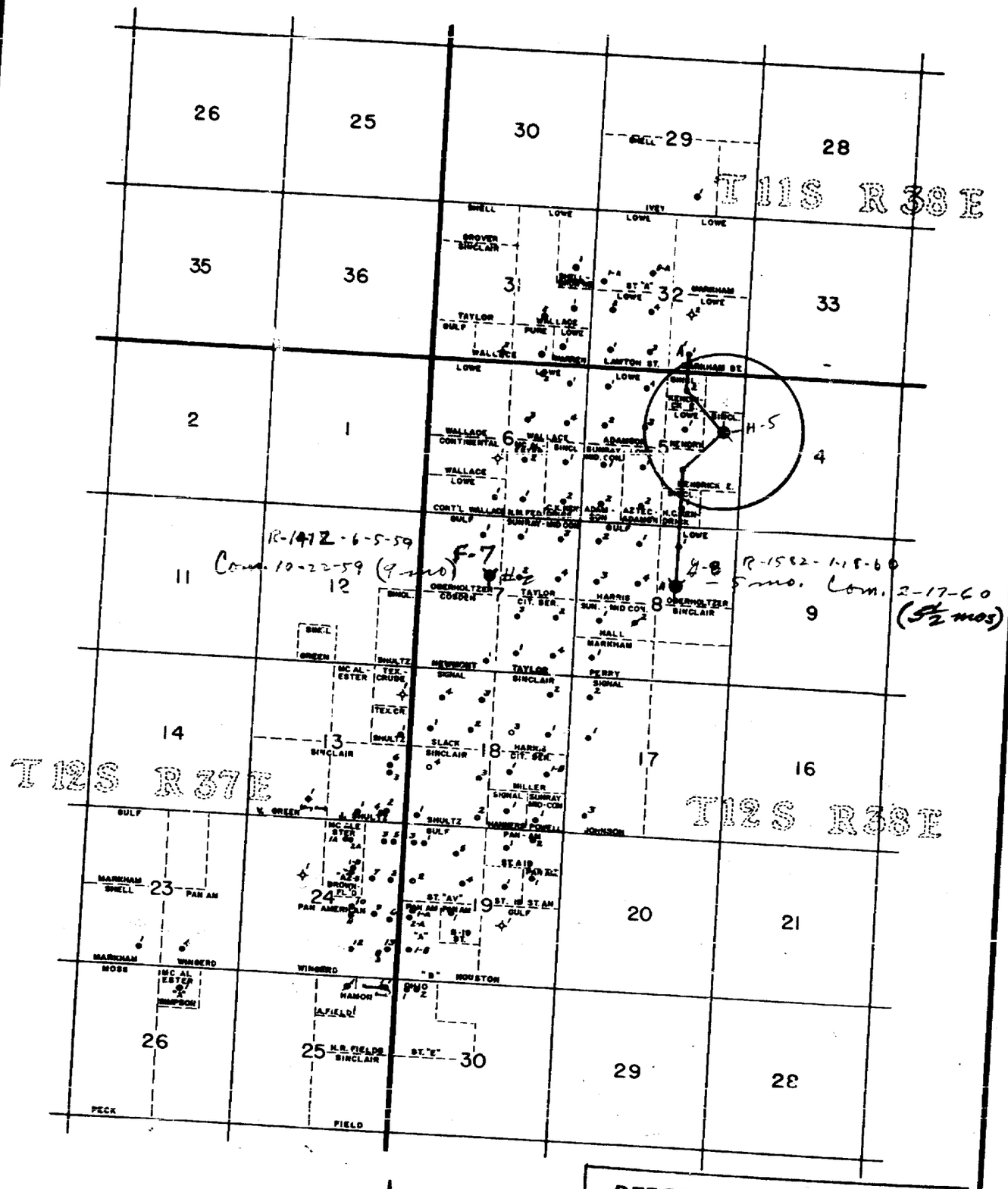
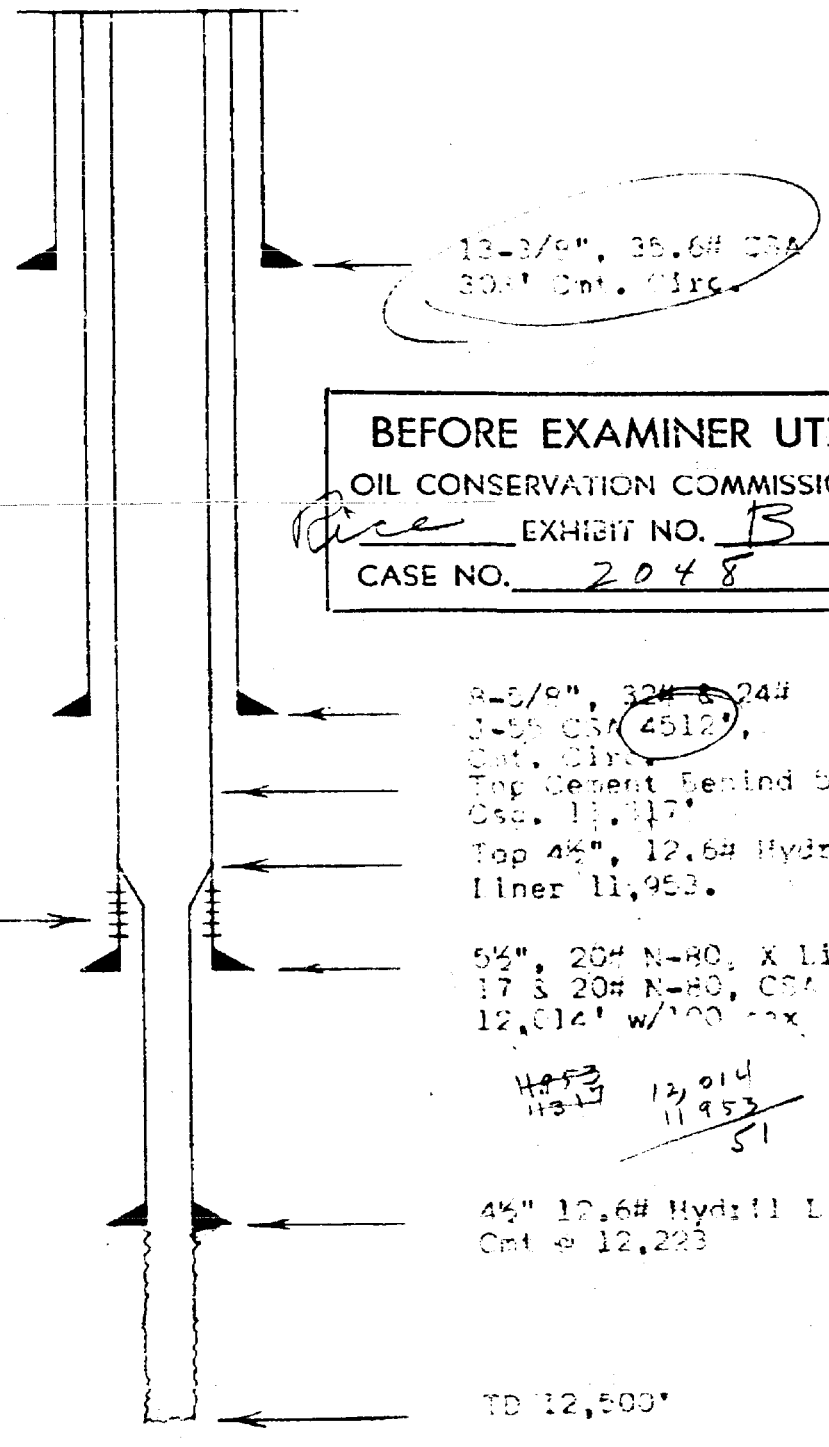

T 11 S R 38 E
T 12 S R 37 E
T 12 S R 38 E
R-1412-6-5-59
Comm. 10-22-59 (9 mo)
F-7
H-2
H-5
G-8
R-1582-1-18-60
5 mo. Com. 2-17-60
(5½ mos)
SCALE
1/2 MILE
1 MILE
(IN MILES)
2000
4000
6000
(IN FEET)
N
LEGEND
BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO.
EXHIBIT "A"
GLADIOLA POOL
LEA COUNTY, NEW MEXICO
RICE ENGINEERING & OPERATING INC.
HOBBS, NEW MEXICO
DRAWN BY FRANK BELL
SCALE SHOWN
DWG. NO C-13

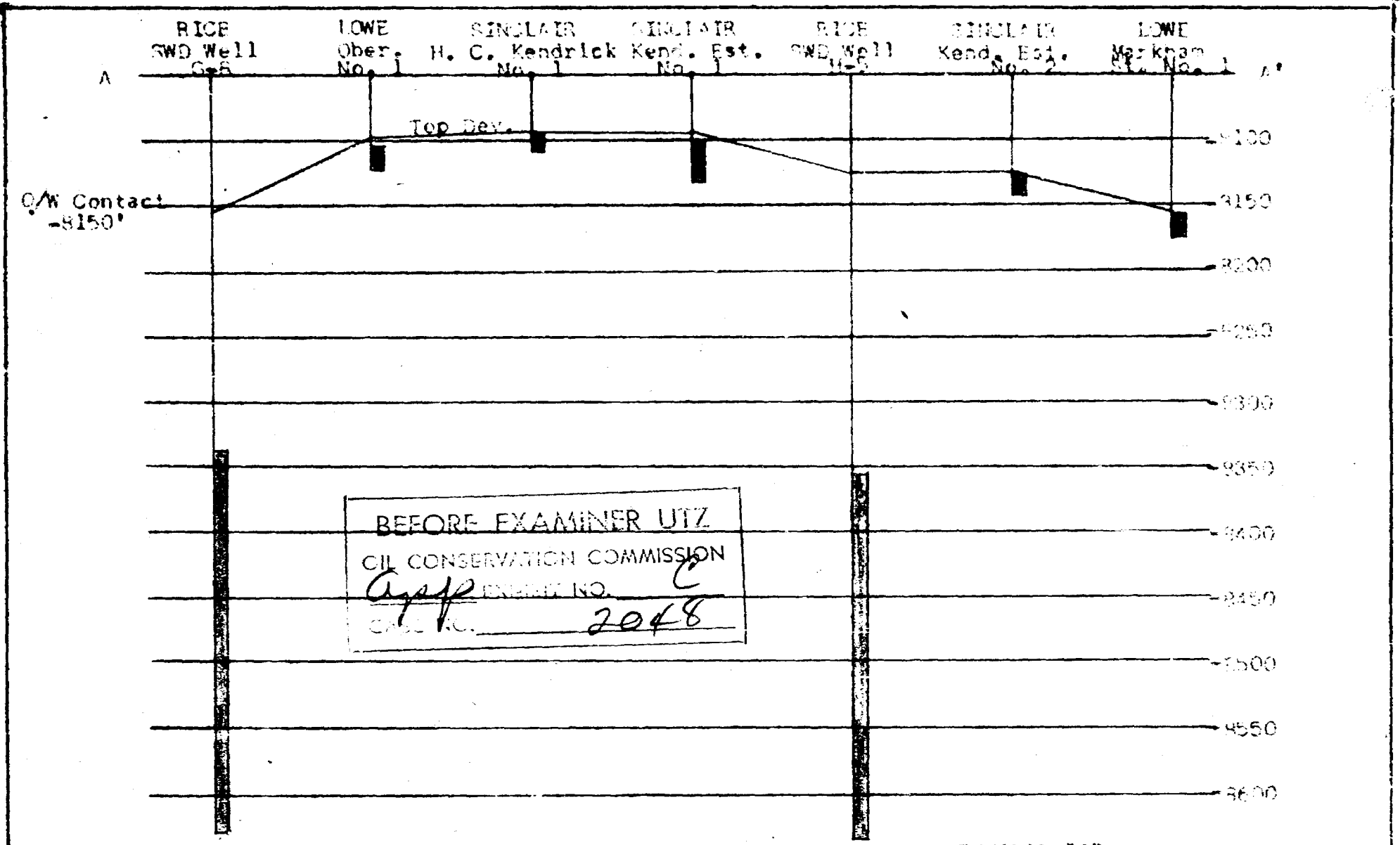
FIGURE 3

ELEVATION 3867' (G.L.)




**BEFORE EXAMINER UTZ**
OIL CONSERVATION COMMISSION
Rice EXHIBIT NO. B
CASE NO. 2048

| | | | |
|---|---|---|---|
| DWN D.B. | June 27-60 | EXHIBIT "B"<br>CLADIOLA SWD WELL H-5<br>PROPOSED RECOMPLETION | SCALE<br>None |
| | | Rice Engineering & Operating, Inc.<br>Hobbs, New Mexico | DWG NO.<br>A-102 |




BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 2048

KEY
Producing Interval
Injection Interval

EXHIBIT "C"

| DWN | D.B. | AUG. '-80 | SECTION A - A' CLAUDELLE SWD SYSTEM | SCALE NONE |
|---|---|---|---|---|
| | | | Rice Engineering & Operating, Inc. Hobbs, New Mexico | DWG NO. A-122 |

**EXHIBIT "D"**
**Wells Within ½ Mile of SWD H-5**
GLADIOLA SWD SYSTEM

| Operator | Lease | Well No. | Completion Interval Elevation | Completion Zone | Remarks |
|---|---|---|---|---|---|
| Lowe | Adamson | 3 | -8118 to -8146 | Devonian | TD -8146 |
| Lowe | Kendrick | 1 | -8124 to -8134 | Devonian | TD -8151 |
| Sinclair | Kendrick Est. | 1 | -8099 to -8110 | Devonian | TD -8145<br>PBTD -8144 |
| Sinclair | Kendrick Est. | 2 | -8119 to 8134 | Devonian | TD -8136<br>PBTD -8135 |
| | | | Wells on A-A' Cross Section | | |
| Rice | SWD | G-8 | -8340 to -8623 | Devonian | Top Dev. -8157 |
| Lowe | Oberholtzer | 1 | -8102 to -8122 | Devonian | Top Dev. -8098 |
| Sinclair | H.C. Kendrick | 1 | -8096 to -8109 | Devonian | Top Dev. -8095 |
| Sinclair | Kendrick Est. | 1 | -8100 to -8131 (Squeezed) | Devonian | Top Dev. -8094<br>Squeeze & Perf -8099 to -8110 |
| Rice | SWD | H-5 | -8130 to -8137 | Devonian | Top Dev. -8126 |
| Sinclair | Kendrick Est. | 2 | -8127 to -8142 | Devonian | Top Dev. -8125 |
| Lowe | Markham St. | 1 | -8157 to -8174 | Devonian | Top Dev. -8156 |

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 8
CASE NO. 2045