

EXAMINER HEARING

IN THE MATTER OF:

Case No.
4208

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 4208.

MR. HATCH: Case 4208. Application of John A. Yates of Artesia for several waterflood projects, Eddy County, New Mexico.

MR. LOSEE: Mr. Examiner, A. J. Losee of Artesia, appearing on behalf of the Applicant. We have one witness, Mr. Eddie Mahfood.

(Witness sworn.)

MR. HATCH: Let me interrupt just a moment. Mr. Losee, I have this as the application of John A. Yates of Artesia. Is that, of Artesia, part of this -- the name that he wants this under or is it just John A. Yates?

MR. LOSEE: No, sir. It's just John A. Yates.

MR. HATCH: Just John A. Yates?

MR. LOSEE: Yes, sir.

MR. UTZ: Any other appearances? You may proceed.

EDDIE MAHFOOD

the witness, called by Mr. Losee, having first been duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. LOSEE:

Q. You are Eddie Mahfood of Artesia, New Mexico?

A. Correct.

Q. What is your occupation?

A. Consulting petroleum engineer.

Q. You have not previously testified before the Commission?

A. No, sir.

Q. Where did you obtain your higher education?

A. I graduated from the University of Texas with a Science degree in Petroleum Engineering in 1958.

Q. Are you a registered petroleum engineer in any states?

A. Yes, sir. I am a registered petroleum engineer in New Mexico and in Texas.

Q. Since your graduation from College, have you attended any seminars?

A. Yes, sir. I attended a five-day seminar with Sinclair Oil, in Tulsa, in 1962. And a three-day seminar at Texas Tech in 1967.

Q. What has been your experience since your graduation since school?

A. Six years petroleum engineering with Sinclair Oil and Gas in south Texas; a year and a half staff engineering with Citronelle Unit, a waterflood organization, in Mobile, Alabama -- near Mobile. And two years district

engineer with Numont Oil in Artesia.

For the past year and a half, I have been a consulting engineer.

Q. Mr. Mahfood, please refer to what has been marked as Exhibit One and explain what is shown on this exhibit?

A. Exhibit One is a lease map of the proposed waterflood area. The red outline is the approximate productive area of the Seven Rivers formation.

Q. Does it show the offsetting leases and wells?

A. Yes, sir. All offsetting leases is shown of this waterflood area, of this proposed waterflood area, with the formations that have been produced also indicated.

Q. Now, your diamond-shaped wells, are those your injection wells?

A. Yes, sir. The triangles are the proposed injection wells.

Q. How many leases are involved in this proposed project?

A. Three lease are being operated by John Yates and are imposed in this -- and will respond to this waterflood.

Q. All right. One of the leases, the Carolina, is

in the northwest quarter of Section 28?

A. That is correct.

Q. The Mary Lou is in the south half, northeast quarter of Section 29?

A. That is correct.

Q. And the Helen is in the northeast quarter northeast quarter of Section 29?

A. That is correct.

Q. Would you give a brief statement of the history of this Seven Rivers east mountain pool?

A. The pool was discovered by the S. P. Yates States J Number One, in 1954. In 1961, I believe, John Yates took over this property and renamed that well Caroline Number Two. At that time he developed additional -- he drilled additional wells.

The area was developed after '61.

Q. Do you know approximately when the last development occurred?

A. In this area here, the Caroline Number Seven was drilled in May of '62 and it was a dry hole -- no, the Betty Ann Number One was more recent; it was drilled in June of '63 -- the Betty Ann is now a plug well.

Q. Please refer to what has been marked as Exhibit

Two, entitled Well Completion Data, and explain what is shown on this exhibit, without elaborating on the details?

A. This exhibit shows well completions effecting the John Yates properties. It shows the date of the completion, the location of the wells, the date of the completion, the total depth, the open hole completions or perforations, the elevation of the well, the oil string -- there is one omission here, the surface casing; I did not recall the surface casing in these wells. But except for the State J Number One, there is two strings of casing in all these wells.

Q. Please refer to what has been marked Exhibit Three-A, being your production decline curve on the Helen lease, and explain what is portrayed by this exhibit?

A. Exhibit Three-A is the production decline curve -- and it shows that this a gas depletion type reservoir. The sharp initial decline, initial decline indicates a high permeable formation. The high permeable strata is quickly depreciated -- the sharp decline indicates that the high permeability strata is quickly depleted and that the less permeable strata will flatten out in the decline.

Q. Mr. Mahfood, what is the accumulative production; you don't have the accumulative on the Helen --

A. Yes, sir. I do. It's ten thousand twenty-four barrels through May of '69.

Q. What is the average production per well on this lease? There is only one well --

A. There is just one well there, and that's ten thousand barrels.

Q. Do you know what it's making at this time?

A. Approximately one barrel per day.

Q. All right. Please refer to Exhibit Three-B and explain this production curve?

A. Three-B is the decline curve for the Mary Lou lease. It contains four producing wells -- the fifth one is a dry hole.

Q. What is the accumulative production on this Mary Lou lease?

A. The accumulative production of the Mary Lou lease through May of '69 is twenty-five thousand four hundred and eighty-five, and its current production is approximately thirty-six barrels per month for the four wells.

Q. And what is the average production?

A. This would give us an average production of approximately one point three barrels a day.

Q. Are there any wells on that lease making over two barrels a day?

A. No, sir.

Q. Please refer to your Exhibit Three-C and explain that exhibit?

A. Exhibit Three-C is the production decline curve of the Caroline lease. You will notice the first six years is pretty flat and it's very low in productivity -- that is the Caroline Number Two production, formerly known as the State J Number One.

It was almost outside of this pool. They almost missed the production -- the pay end as well, and it just -- it just eked out a little bit of oil, continuously.

Q. Then, in '61, the additional three wells were drilled?

A. That's right. In '61, the additional wells were drilled.

Q. What is the accumulative production from this Caroline lease?

A. The accumulative production from the Caroline lease is fifty-seven thousand and eighteen barrels through May of '69. The current production is approximately one hundred thirty-six barrels per month, for five wells, which

is less than two barrels a day per well.

Q. Is there any well on that lease making in excess of two barrels?

A. The pumper tells me that none is making more than two barrels a day.

Q. Mr. Mahfood, in your opinion, are these wells on these three leases stripper wells?

A. Yes, sir. I do believe that all these wells are stripper wells.

Q. Do you have an opinion as to the ratio of secondary oil that will be recovered to primary oil?

A. I have made a study of these pools for Mr. Yates, and I find that several of these wells do not completely penetrate the total pay of the Seven Rivers.

Therefore, a fair amount of primary reserves has not been uncovered. Therefore, by instituting a waterflood, we will not only recover the secondary oil in the total depleted areas, but also some of this primary oil in the undepleted areas.

So, I say it will be some figure greater than the primary figure.

Q. Please refer to your Exhibit Four --

A. Exhibit Four are two well logs, one of each

injection well.

Q. Have you marked the pay sections of the Seven Rivers on each of these wells in red?

A. Yes, sir. The red indicates the pay section and I've also noted the perforations, the proposed perforations.

Q. Please refer to your Exhibit Five-A, being the diagrammatic sketch of the Mary Lou Number One, converted to injection, and explain what is shown briefly by this?

A. Five-A is the diagrammatic sketch of the injection well of the Mary Lou Number One. We note two strings of casing, with the surface casing cemented to the surface -- the oil string is cemented to the -- approximately sixty-three feet from the surface.

Q. Is that calculated top --

A. Yes, sir. That is calculated top of the cement. And there is two layers of cement behind the surface area -- which would protect any fresh water in the area.

Q. You would propose to inject down the tubing and with the tension packer?

A. Yes, sir, that is correct.

Q. Please refer to Five-B and explain what this

portrays?

A. Five-B is a diagramatic sketch of the injection of Caroline Number Four. There we have two strings of casing, surface casing cemented to the surface -- the oil string cemented to an estimated top of four hundred twenty-eight feet from the surface. We propose to set the packer at about ten fifty feet, which would be above six hundred feet below the top of the cement and inject through the tubing.

Q. There was negligible water encountered in the drilling of these wells; is that correct?

A. That's correct, sir.

Q. What is the source of water for this injection?

A. The source of water is the Ogallala water from the Double Eagle Corporation, and line is being laid to their eight-inch line, which is located approximately eleven thousand feet away from the project area.

Q. What do you estimate the volume in pressure of water injection into these two wells?

A. The wells should take an estimated five hundred fifty barrels of water per day, with five hundred pounds of well head pressure.

Q. In your opinion, will these proposed injection

well completions protect any fresh water in the area?

A. Yes, sir. Yes, there is adequate cement -- they have the pipe to protect.

Q. Were Exhibits One through Six prepared by you?

A. That is correct.

MR. LOSEE: We move the introduction of Exhibits One through Six.

MR. UTZ: Without objection, Exhibits One through Six will be entered into the record of this case.

(WHEREUPON, Applicant's Exhibits One through Six, inclusive, were admitted into evidence.)

MR. LOSEE: We have no further testimony at this time.

CROSS EXAMINATION

BY MR. UTZ:

Q. How do you spell your name?

A. Mahfood -- M-a-h-f-o-o-d.

Q. Mr. Mahfood, what do you intend to do about the annulus in these two injection wells?

A. Sir, we propose to put fresh water in -- inhibited fresh water in the casing annulus.

Q. And the surface at the annulus, you are going

to leave it open, put a gauge on it or what?

A. Yes, sir. I don't see any need for any additional protection.

Q. Well, which are you going to do?

A. Oh, we'll put the gauge on it -- yes, sir.

Q. All right.

MR. UTZ: Any other questions?

MR. HATCH: Was that five hundred barrels of water per day?

THE WITNESS: Five hundred and fifty barrels of water per day for both wells.

MR. HATCH: For both wells?

THE WITNESS: Yes, sir.

MR. UTZ: The witness may be excused.

Statements?

The case will be taken under advisement.

I N D E X

	<u>Page</u>
The Witness - EDDIE MAHFOOD	
Direct Examination by Mr. Losee	2
Cross Examination by Mr. Utz	12

E X H I B I T S

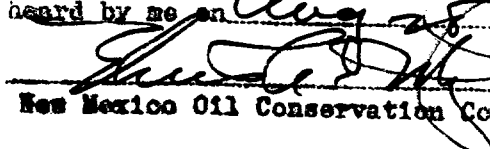
	<u>Admitted</u>
Applicant's Exhibits One through Six	12

STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, CA FENLEY, 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.

Witness my Hand and Seal this 14th day of November, 1969.


 COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4208 heard by me on Aug 28, 1969.

 Examiner
 New Mexico Oil Conservation Commission

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101
 1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Exhibit 2

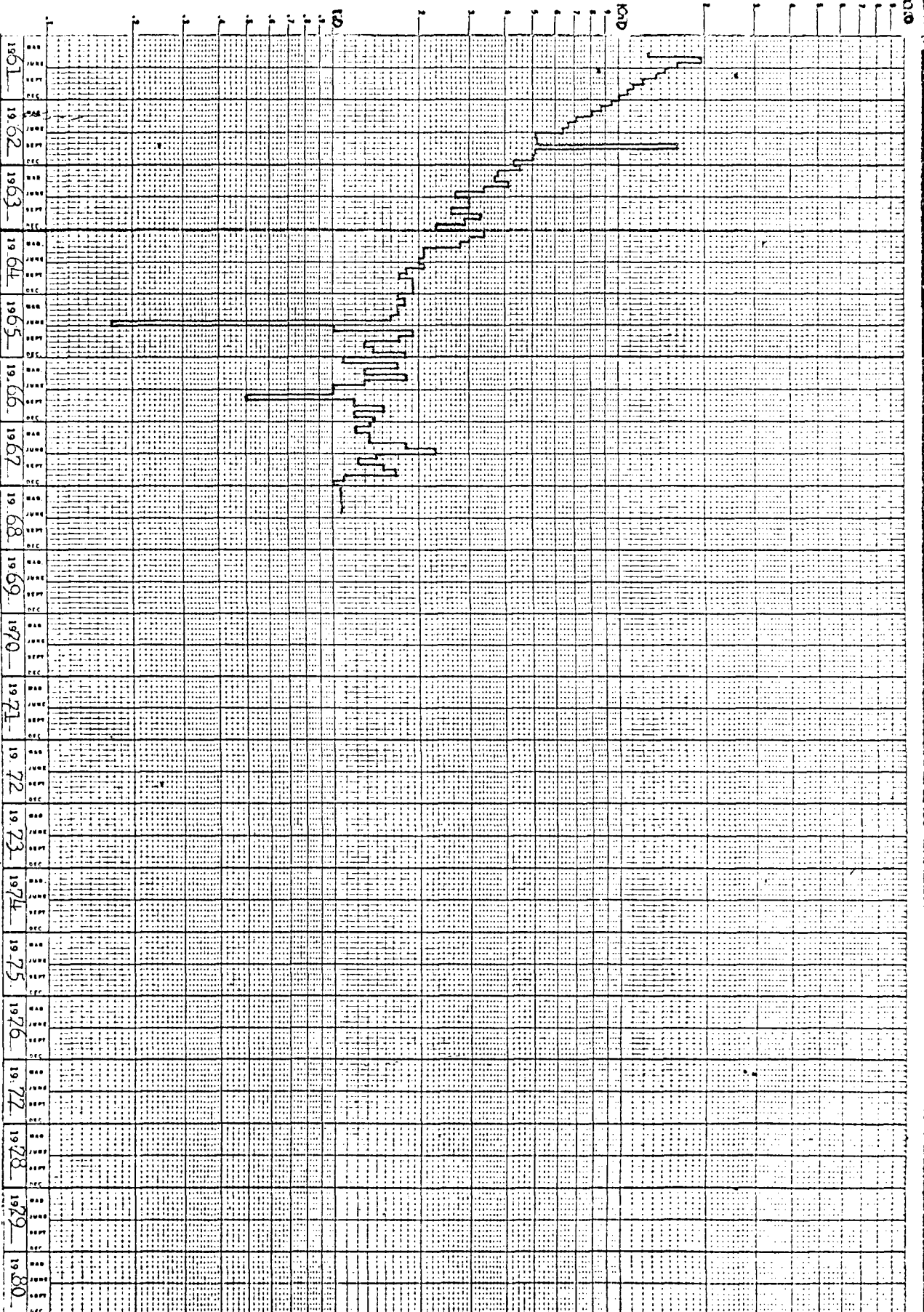
WELL COMPLETION DATA - EAST MILLMAN SEVEN RIVERS

John A. Yates - Operator

<u>Caroline #2</u> (prev.State J #1) 1980/N 660/W Sec 28-19-28	c.Feb 54 TD-4081 PB-1140; Open Hole, SOF 1114-25 w/3000g. El. 3378 8 5/8" 24# @ 568' IP- 5 BOPD 30°API 10/58: Deepened to 1154' SR-1085'
<u>Caroline #1</u> 1650/W 330/N C-28-19-28	c.7-10-61 TD-1226, PB-1220; Pf 1076-80, 1101-04, 1110-14, El. 3401 4 1/2" 9.5# 1220' Pf 1142-46, 1174-78; 5000g. 15% 12/66: SWF 80000#/1922b. Incr fr 2 BO to 40 BOPD; IP-56f
<u>Caroline #3</u> 330/N 990/W D-28-19-28	c.9-15-61 TD-1250, PB-1240; Pf 1142-44, 49-52, 57-60, 75-77, El.3406 4 1/2" 1250'75sx Pf 1199-1205; 13000g. 15%; SR-1090 IP- 35 BO 20 BOPD swb
<u>Caroline #4</u> 1650/N 330/W E-28-19-28	c.10-6-61 TD-1190, PB-1180; Pf 1100-04, 28-33, 39-44, 59-63, El. 4 1/2" 1190' 75sx Pf 1168-72; 8000g. 15%; SR-1054 IP- 38 BOPD 16/64 ck, 38°API
<u>Caroline #5</u> 990/N 990/W D-28-19-28	c.3-6-62 TD-1156, PB-1150; Pf 1126-30, 1046-70; 22500g. 15% El.3392 4 1/2" 1156' 100sx SOF-50000#/500 BO; IP- 10BO,25BW SR-1050
<u>Caroline #6</u> 330/N 1650/W C-28-19-28	c.3-25-62 TD-1125, Open Hole, 1060-1125 w/15000g. El.3396 4 1/2" 1060' 100sx IP- 25 BOPD pumping SR-1043
<u>Caroline #7</u> 1650/N 1650/W	c.5-17-62 TD-1205 sso @ 1158-70, did not acidize El. 3381 SR- 1068 Dry & abandoned.
<u>Betty Ann #1</u> 2310/S 2310/W J-29-19-28	c.6-1-63 TD-1300, PB-1160; Pf 1046 1/2-52, 57-58, 64-68, 1103-05 El. 3392 4 1/2" 1160' 100sx 10000g. 7 1/2%; IP- 19 BOPD pumping SR-1012 P&A 5-15-69, pulled 715' 4 1/2" csg
<u>Helen #1</u> 990/N 330/E A-29-19-28	c.4-8-61 TD-1107, PB-1107; Open hole, 1015-1107 w/15000g. 7 1/2% El. 3396 4 1/2" 1020' 50sx s/o 1030-40, incr 1045-70 SR-1008 IP- 35 BOPD pumping, 32°API
<u>Mary Lou #1</u> 1650/N 330/E H-29-19-28	c.7-22-61 TD-1252, Pf 1098-1102, 1109-13; 3000g. 15% El.3389 4 1/2" 1157' 100sx IP- 46 BOPD 16/64 ck, 34°API,CP-100 SR- 1030
<u>Mary Lou #2</u> 1650/N 1650/E G-29-19-28	c.8-7-61 TD-1252, PB-1178; Pf 1091-95, 1106-09, 13-17; 3250g. El.3392 4 1/2" 1178' 100sx SOF 25000#/600 BO; SR-1020 IP- 42 BOPD 16/64 ck, 34°API,CP-100
<u>Mary Lou #3</u> 990/N 1650/E	c.10-24-61TD-1250 sso @ 996-1005; s/w 1020-50 El.3406 SR- 984 Dry & abandoned.
<u>Mary Lou #4</u> 2310/N 990/E H-29-19-28	c.4-23-62 TD-1122, Open hole, 1078-1122 w/ 7500g. El.3390 4 1/2" 1078' 100sx b. 1/2gph @1106, 15gph @ 1115 SR- 1085 IP- 20 BOPD pumping, 36°API
<u>Mary Lou #5</u> 2310/N 1650/E G-29-19-28	c.5-7-62 TD-1127 Open hole, 1061-1127 w/ 7500g; SOF; El.3392 4 1/2" 1061' 100sx s/o 1090-95, b. -gph; 1095-1101, SR-1060 b. 75gph; IP- 20 BOPD pumping

BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. 2
 CASE NO. 4208

WATER & OIL PRODUCTION BBLS/DAY
WATER INJECTION BBLS/DAY



BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

EXHIBIT NO. 34

CASE NO. 4208

TIME-YEARS

Exhibit 3a

JOHN A. YATES

PRODUCTION DECLINE CURVE

HELEN LEASE

WILMAN EAST (SEVEN RIVERS)

WATER & OIL PRODUCTION BBLS/DAY
WATER INJECTION BBLS/DAY

BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

EXHIBIT NO. 313

CASE NO. 4208

TIME - YEARS

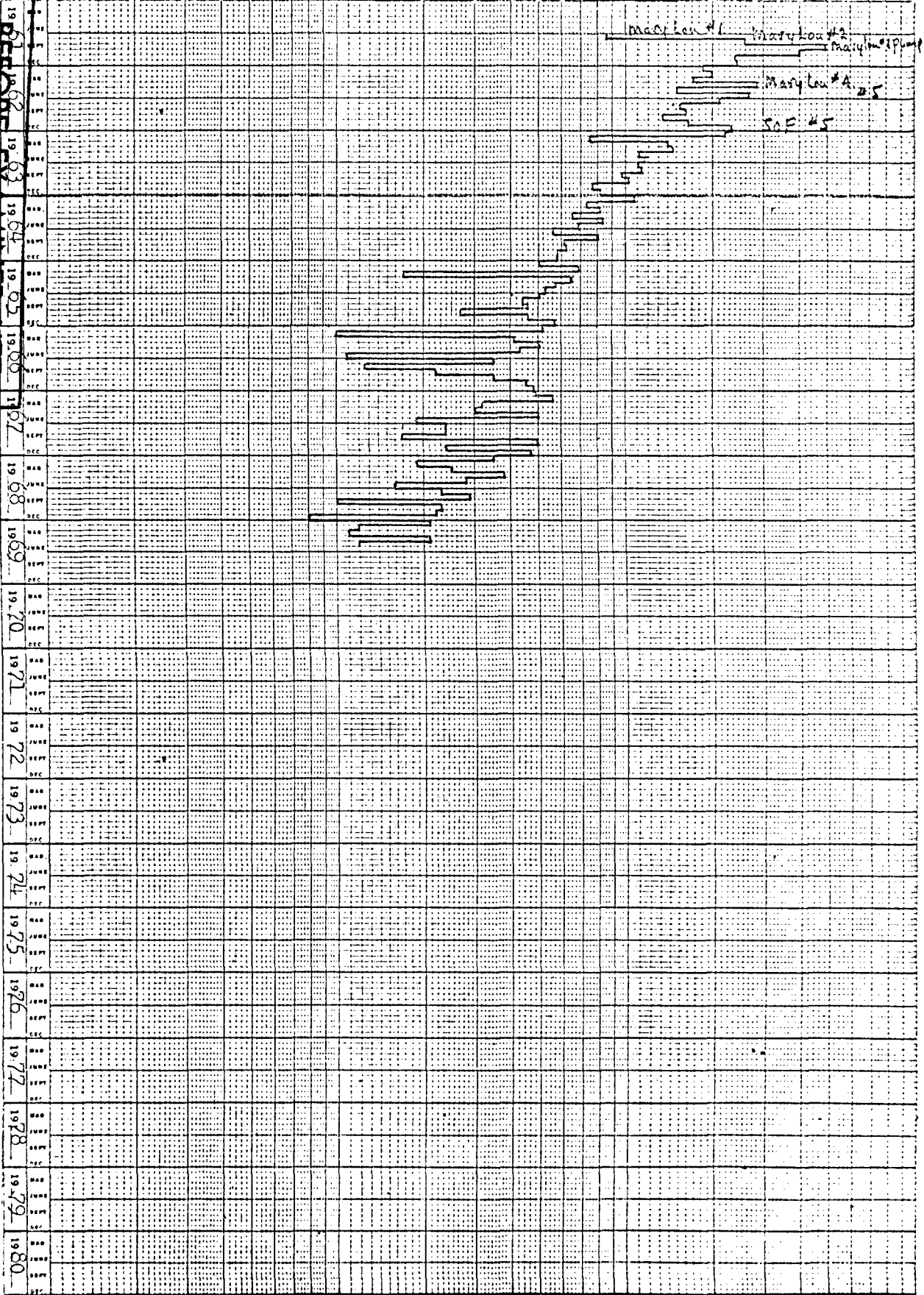


Exhibit 36

JOHN A. YATES

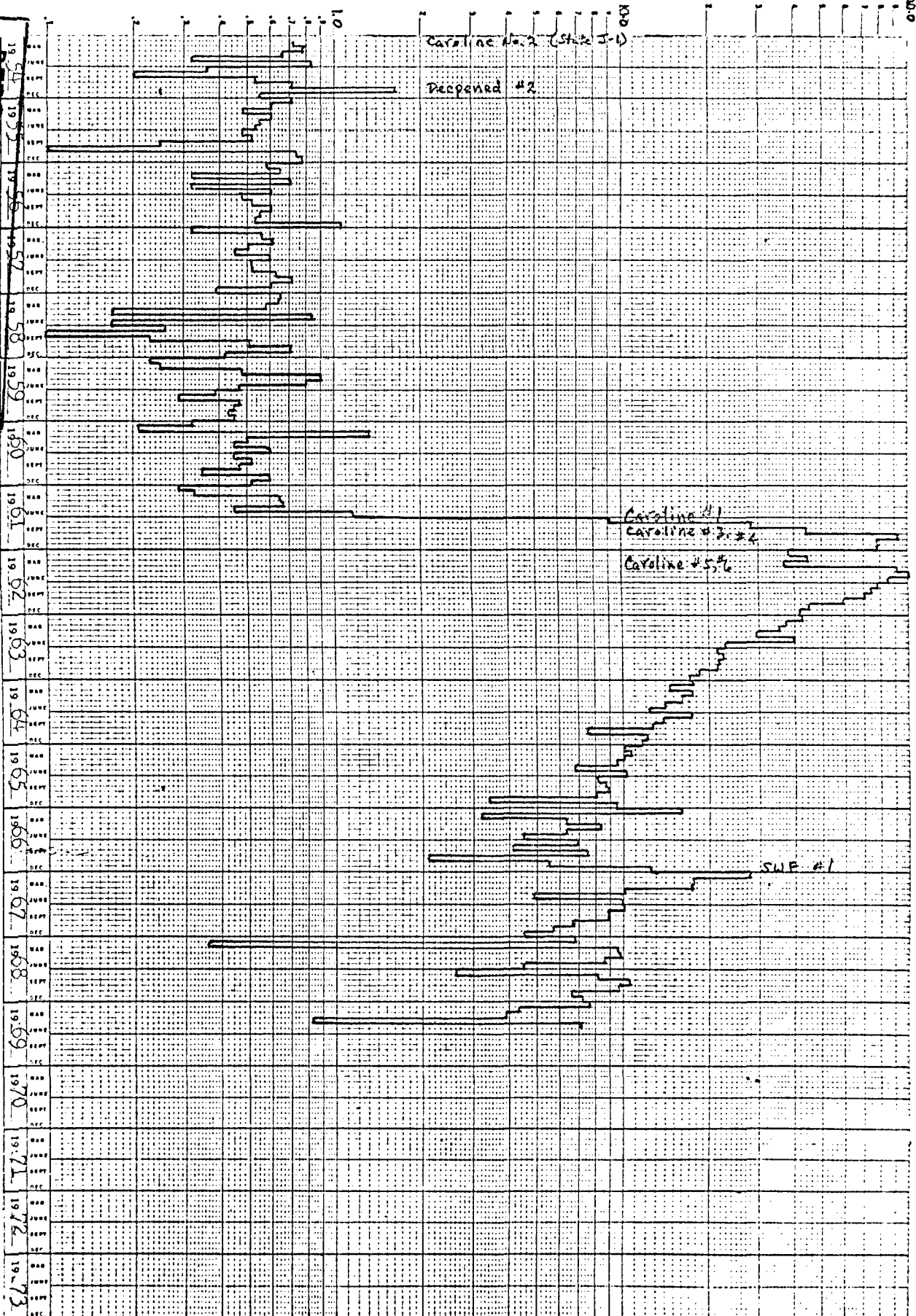
PRODUCTION DECLINE CURVE

MARY LOU LEASE

MILMAN EAST (SEVEN RIVERS)

WATER & OIL PRODUCTION BBLs/DAY
WATER INJECTION BBLs/DAY

100.0



BEFORE EXAMINER UTZ

OIL CONSERVATION COMMISSION

EXHIBIT NO. 3C

CASE NO. 4208

TIME - YEARS

Exhibit 3c

JOHN A. YATES

PRODUCTION DECLINE CURVE

CAROLINE LEASE

MILMAN EAST (SEVEN RIVERS)

EXHIBIT

EXHIBIT 1

FILE NO. _____

COMPANY JOHN A. YATES

WELL CAROLINE NO. 4

FIELD ANSELL

COUNTY ELDY STATE NEW MEXICO

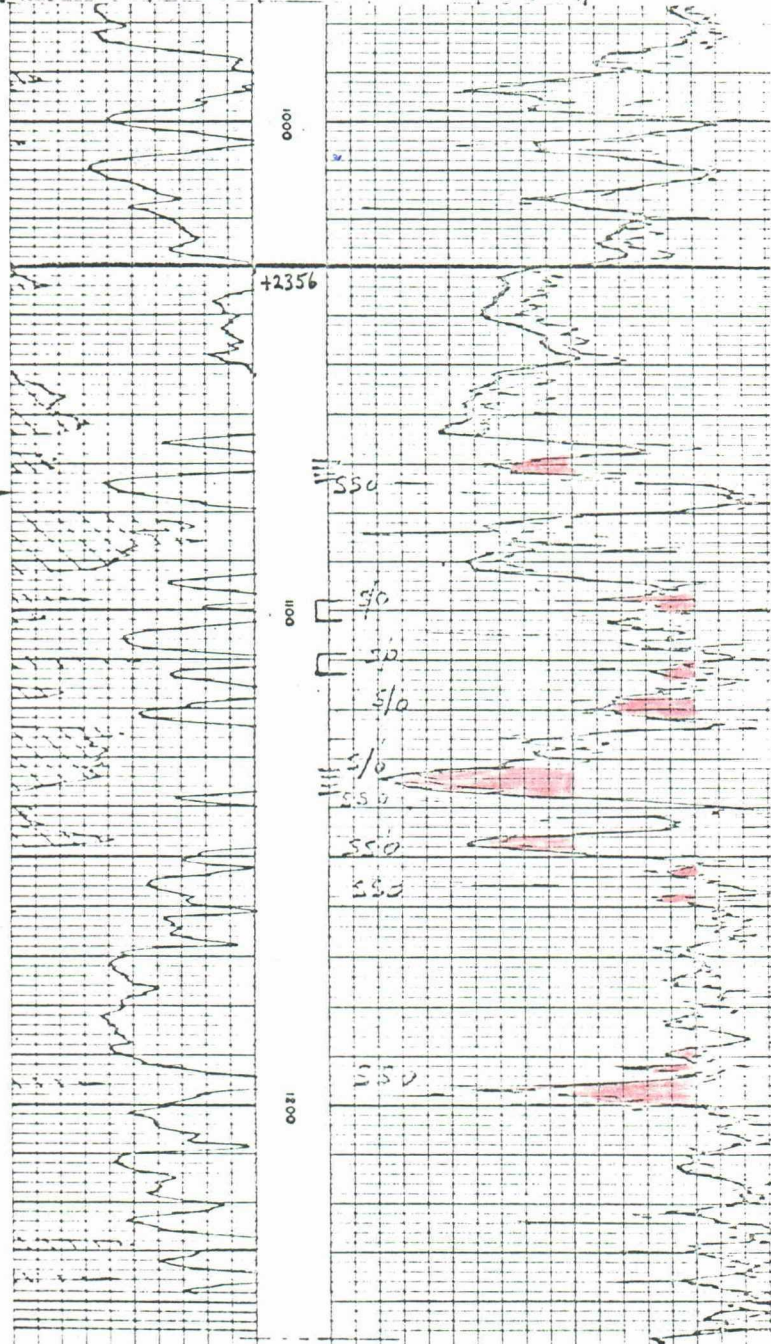
LOCATION: 1650' FNL to 330' FNL

Other Services _____

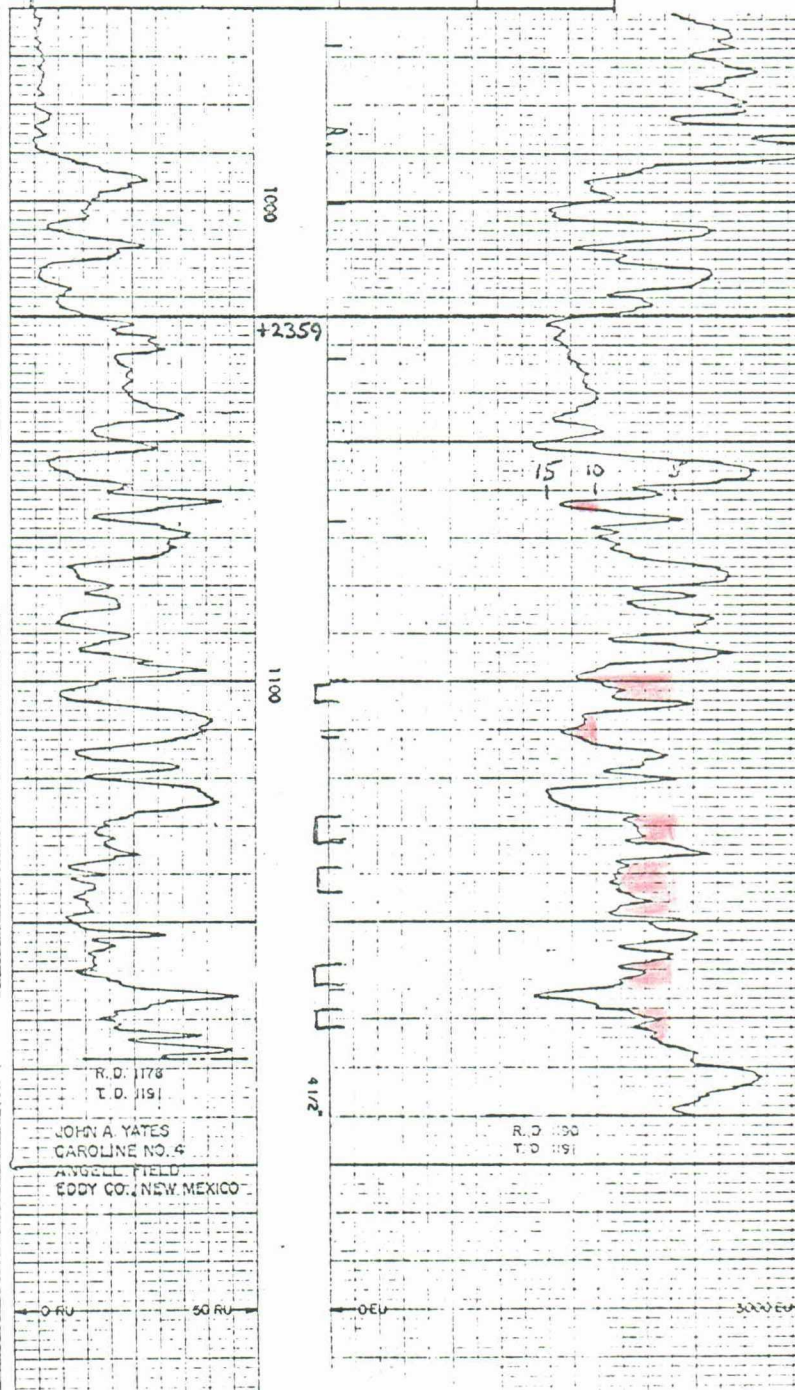
SEC 28 TWP 17-S RGE 28-E

Permanent Datum	GROUND LEVEL	Elev.	XB
Log Measured from	GROUND LEVEL	_____ Ft. Above Permanent Datum	OF 3383
Drilling Measured from	GROUND LEVEL		CL

10-2-61	10-2-61
BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
EXHIBIT NO. 4	
CASE NO.	FULL 4208
WITNESSED BY	W. TATES & SONS, ATTYW



1248'	LANE WELLS	FIRST READING
1252'	LANE WELLS	TOTAL DEPTH
1252'	DRILLER'S	TOTAL DEPTH

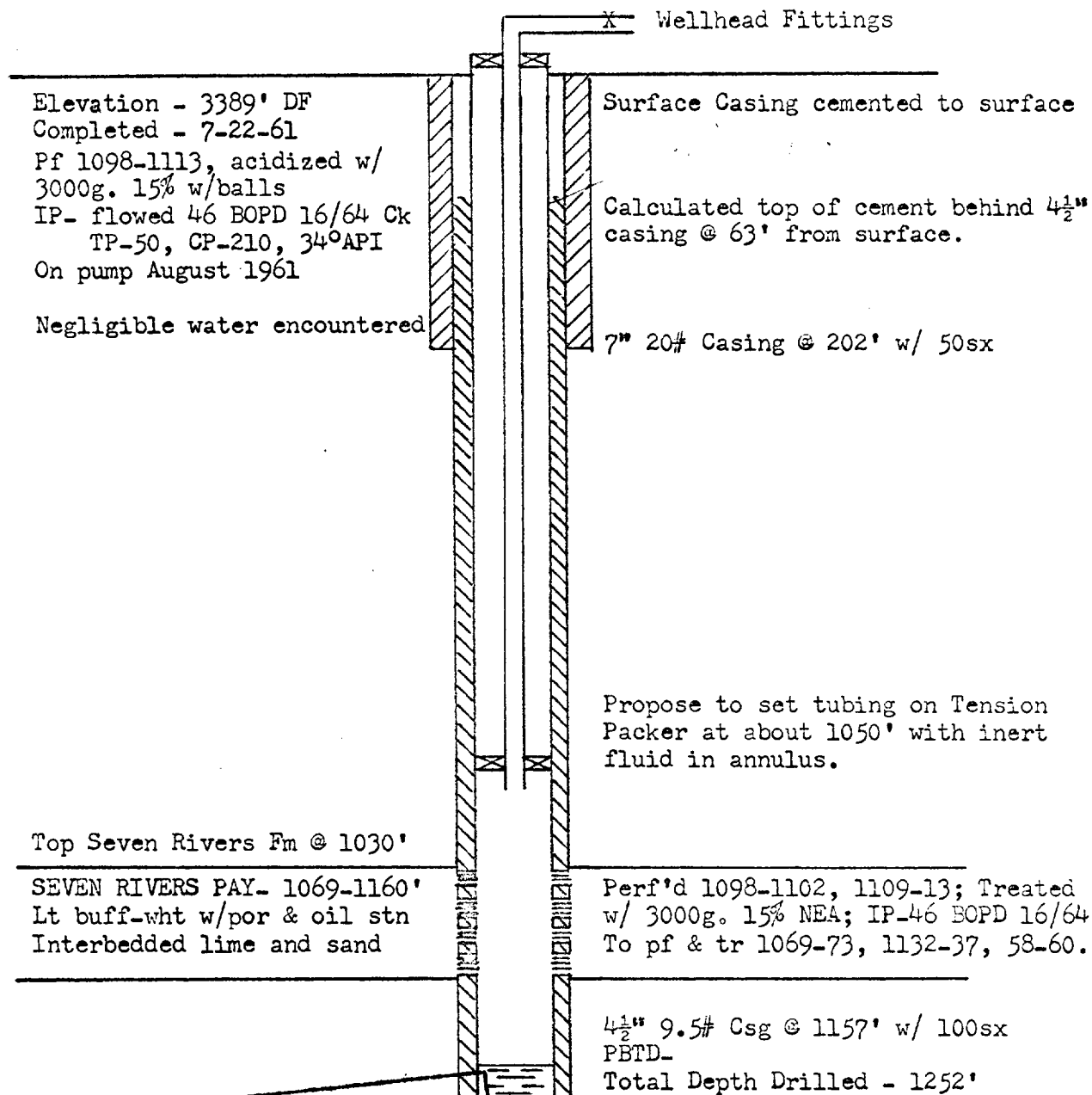


Q/R LOG CALIBRATION
BEFORE LOG

DIAGRAMMATIC SKETCH OF INJECTION WELL

JOHN A. YATES - MARY LOU NO. 1
1650/N 330/E, H-29-19-28
Millman, East (Seven Rivers)
Eddy County, New Mexico

EXHIBIT **5a**

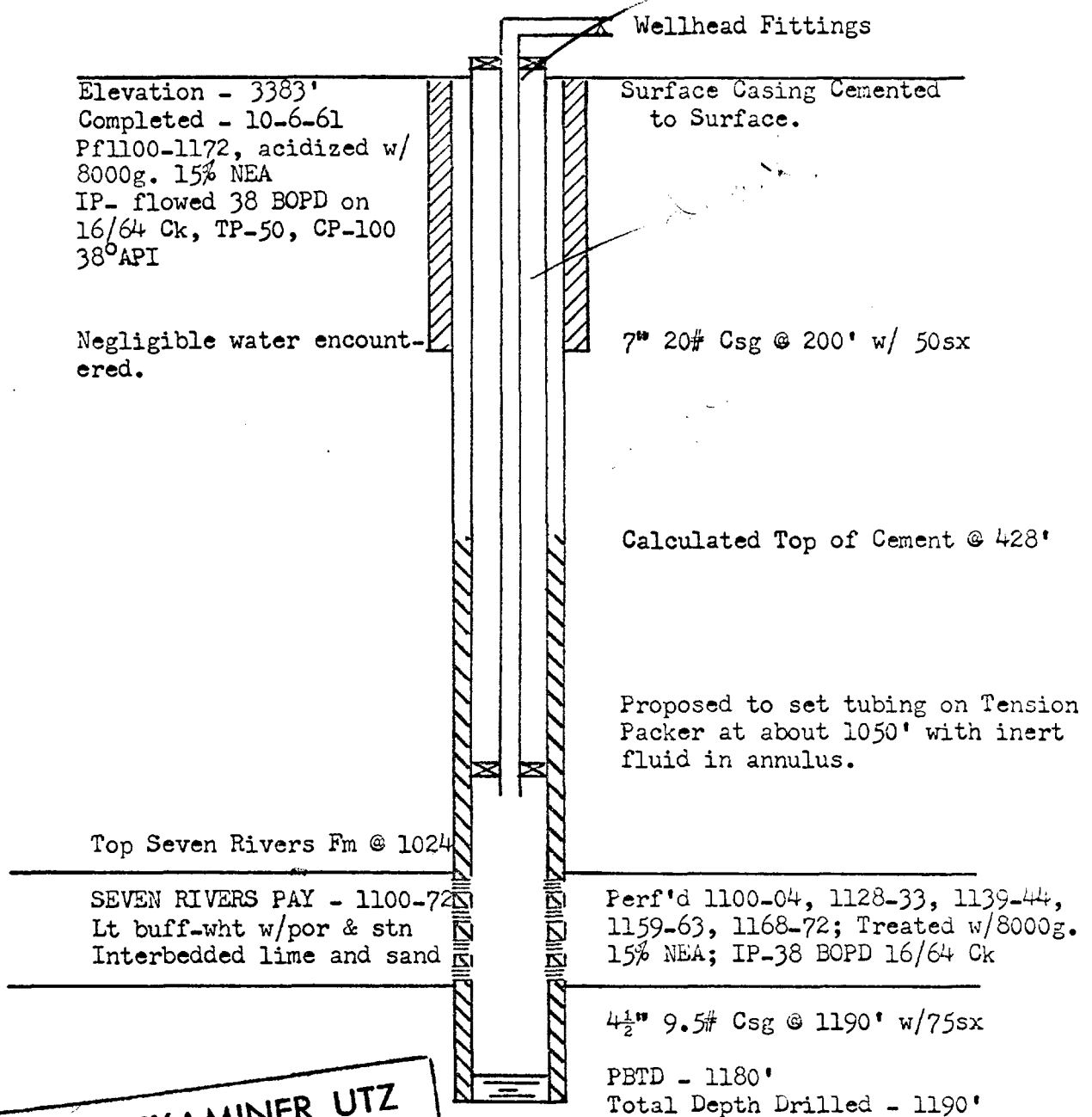


BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5A
CASE NO. 4208

DIAGRAMMATIC SKETCH OF INJECTION WELL

JOHN A. YATES - CAROLINE NO. 4
1650/N 330/W, E-28-19-28
Millman, East (Seven Rivers)
Eddy County, New Mexico

EXHIBIT 5b



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5B
4208