BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 1, 1970

EXAMINER HEARING

IN THE MATTER OF:
Application of Getty Oil Company for a waterflood expansion and amendment of Order No. R-2966, as amended, Lea County, New Mexico.

Case No. 4371

BEFORE: Elvis A. Utz, Examiner.

APPEARANCES:

For the Applicant: MONTGOMERY, FEDERICI, ANDREWS, HANNAHS & MORRIS, Esqs.
BY: Richard Morris, Esq.

For the Oil Commission: George M. Hatch, Esq.

TRANSCRIPT OF HEARING

MR. MORRIS: My name is Richard S. Morris of Montgomery, Federici, Andrews, Hannahs and Morris, Santa Fe, appearing on behalf of the Applicant. I have one witness, Mr. Miller, and ask that he stand and be sworn.

EUGENE MILLER

being duly sworn according to law, upon his oath, testified as follows:

(Whereupon, Applicant's Exhibits 1 through 7 were marked for identification.)

MR. MORRIS: Mr. Examiner, first I would like to point out an error on the Application that was filed in this case which does not effect the notice. In the listing of the proposed injection wells and their locations there is an error on the third well listed described as well 308. It should be well number 305. The footage description, it is 990 from the north line then that should be 330 from the west line and the unit should be unit D rather than unit O. Now, fortunately that was picked up correctly on the notice that was given for this case.

MR. UTZ: What was the footage again?

MR. MORRIS: 990 from the north line and 330 feet from the west line. Mr. Hatch has already picked up the correction on the Docket that the Applicant is Getty Oil Company rather than Betty Oil Company.

DIRECT EXAMINATION

BY MR. MORRIS:

Q Mr. Miller, please state your name and where you reside?

A My name is Eugene Miller. I live in Hobbs, New Mexico.

Q By whom are you employed and in what capacity?

A Getty Oil Company as the area engineer for the Hobbs area.

Q And have you previously testified before the Commission or one of its Commissioners and have your qualifications been established and accepted of record?

A Yes, sir. I have, yes.

Q Since you have been referring to the first two Exhibits at the same time, would you identify what has been marked as Exhibit 1 and Exhibit 2 in this case?

A Exhibit 1 is a plat of the Justice-McKee unit that Getty Oil Company operates and Exhibit 2 is a tabulation of the performance that we have experienced in flooding this unit since 1966.

Q Now, are the presently authorized injection wells designated in green on that Exhibit?

A Yes. Green circles around the periphery.

Q And the well designated in red and the three wells

designated in blue represent the proposal that you intend to make to the Commission in this Hearing?

A That is correct.

Q Referring to these two Exhibits, would you explain to the Examiner what the initial plan was for water flooding in this unit area and how that plan has worked out up to the present time?

A Justice-McKee Unit was formed when Getty, which was formerly Tidewater, assumed the operation January 1st, 1966. Cumulative oil production from the McKee unit area was one million two hundred thirty-one thousand barrels. At that time the Engineering Committee had estimated that the ultimate primary would be one million three hundred fifty-five thousand or that there was a hundred twenty-four thousand barrels remaining in the primary. It was decided that water should be injected on the outside edge as shown on the plat with the green circles -- at the outside edge which would be at or near the oil water contact and the oil should be flushed up structure and a line drive performed. Original plans called for an injection rate of rusty water at the rate of 5,165 barrels a day into these five injectors until fill up and fill up we assumed to be two million barrels. Then the rate was to be reduced to 1640 barrels a day until over six million barrels had been injected.

We actually began water injection in October, 1967

and the maximum beginning rate we were able to get in the four wells -- No. 128 was drilled later as noted on the tabulation here -- the maximum rate we got in for one day was 1591 barrels and the tabulation, as you will note, shows that we got 1185 from all five of the wells. This is pretty far from that 5,000 barrels that we expected to put in. We were putting water in at 900 pounds pressure and since this we have greatly staged the injection pressure upward to 2200 pounds and at the present time, as shown on the tabulation, we are putting about six hundred fifty-six barrels a day in the wells. Obviously we will not be able to flood the McKee zone under these conditions, therefore we are requesting permission to expand the flood to an execute pattern as shown on the plat. It is possible that the wells up structure in a productive portion of the field will take water at sufficient rate to allow us to go ahead and flood the McKee sand.

In our first step we intend to convert No. 108 to injection to see if sufficient water can be injected to flood it. If this test is successful, we will convert the other three wells as shown in blue on the plat and complete the flood. We have chosen 108 for this test because it has produced, as shown in the tabulation, 127,000 barrels of oil. The core from this well shows permeabilities of between fifteen and 635 millidarcies. If there is some physical characteristic in this sand

blocking or making the sand impossible to flood, it should show in 108 fairly quickly if the sand is rearranging and blocking our permeability, if we are having some swelling problems. We have worked quite a bit with our injection water trying to keep any type of problem that we might have down, but we would like to try 108 first and see if we can get water in the ground.

Q You are asking at this time, Mr. Miller, that not only 108 be approved for injection, but on the assumption that that pilot or additional tests works out satisfactorily that you would want to go immediately to the other three wells that are the subject of this Application; so you are asking for permission to inject water into four additional wells at this time?

A That is correct.

Q Would you refer, please, to what has been marked Exhibit 3, 4, 5 and 6, being the mechanical diagrams, mechanical sketch of the mechanical installation of the four proposed injections wells and point out how they are equipped and will be equipped for water injection.

A These wells, as you can see -- three of them are dual completions; one of them is a single. In each case the McKee zone will be isolated with packers and injected down tubing underneath the packer.

Q Do you propose to do any work on well No. 108 before you inject water into that well?

A With this injection test we plan to simply turn it around and start putting water in the ground. It is equipped with a packer up above the formation. The McKee is isolated so this would be an economical way of finding out how far we can go with the flood.

Q If it doesn't work in No. 101, your chances of having it work in the other wells are very slim, is that correct?

A That is correct.

Q Assuming that your expansion project is successful, is there a possibility, that you may, in the future, wish to convert other wells to water injection, other than the wells are presently authorized?

A That is possible in that there are other wells in the area that are twins to these wells and it might be possible that we could economically change over from one to the other and maybe come out with a single well rather than with a dual and for that reason we'd like to allow ourselves to change some wells and also drill other wells as needed to develop this project if it is successful.

Q Are you seeking approval at this time from the Commission of administrative procedure whereby you could convert additional wells to injection without a showing of well

response as a condition to that conversion?

A Yes.

Q Is Exhibit 7 a copy of the water analysis of the water from the Rustler zone or formation that is being used as injection water?

A Yes. This analysis was run early in the life of the flood.

Q Is this water being treated prior to injection?

A It is being treated for corrosion and scale at the source well and being injected.

Q This is water that would be used in the additional four injection wells that are the subject of this Hearing?

A Yes. This is non-potable water that would be used.

Q To point out at the outset, Mr. Miller, that this operation is occuring within the Justis-McKee Unit area, now, Getty Oil Company is the operator of that Unit and is the operator of the Waterflood Project?

A That is correct. There are other companies involved.

Q Would your proposal to the Commission in any way jeopardize the correlative rights of the operators in this area?

A No. It would not in that the Unit involves all of the production in that area.

Q Would approval of your Application be in the best

interests of conversation and the prevention of waste?

A Yes. It would.

MR. MORRIS: At this time, Mr. Examiner, we offer Applicant's Exhibits 1 through 7 into evidence.

MR. UTZ: Without objection, Exhibits 1 through 7 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits 1 through 7 were offered and admitted in evidence.)

Q (By Mr. Morris) Do you have anything further you care to add to your testimony, Mr. Miller?

A I can't think of anything.

MR. MORRIS: All right. That is all I have on Direct Examination.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Miller, you are asking for all four of these wells to be approved at this time even though you are only going to use the No. 108 addition as a pilot, is that correct?

A That is correct, sir.

Q And in addition to that you want the adminstrative approval for additional injection wells?

A Yes, in case it becomes necessary to convert additional wells in the future.

Q Or change wells?

A Yes, in case it is successful.

Q On these first three wells, since they are duals I presume that if your opposing zones would start producing water, that would be a pretty good sign the packer wasn't holding, right?

A Yes. We have one we are repairing right now, sir.

Q Now, on your 701 well, what type of tubing are you going to put in that well?

A In 701?

Q Yes?

A It will be plastic coated. That would be converted after the test.

Q Are you going to load the annulus?

A Yes. It will be loaded inert fluid of some type. You will notice that the No. 701 is a proposed sketch. The Ellenburger is depleted. It is now actually completed, but this one will be pulled and reset up like this before it is put on injection.

Q Are these locations on your Application now correct?

A Except as corrected, yes, sir.

MR. UTZ: I have no other questions of the witness. The witness may be excused.

Any statements? The case will be taken under advisement.

I N D E X

STATE OF NEW MEXICO)
)
COUNTY OF BERNALILLO)

I, PETER A. LUMIA, Certified Shorthand 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.

Peter A. Lumia
COURT REPORTER

NOTARY PUBLIC

My Commission Expires:

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4371 heard by me on July 8, 1970.

New Mexico Oil Conservation Commission

Martin Water Laboratories

BOX 1468 MONAHANS, TEXAS WI 3-3234

RESULT OF WATER ANALYSES

LABORATORY NO. 26741

TO: Mr. Harold Vest

SAMPLE RECEIVED 2-14-67

P. O. Box 249, Hobbs, New Mexico

RESULTS REPORTED 2-16-67

COMPANY Tidewater Oil Company LEASE A. B. Coates "C"

FIELD OR POOL Justis (McKee) Unit

SECTION ____ BLOCK ____ SURVEY ____ COUNTY Lea STATE N. M.

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from water supply well #1-E. 5:00 P.M. 2-14-67

NO. 2

NO. 3

NO. 4

REMARKS: Rustler Zone

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0054			
pH When Sampled				
pH When Received	7.5			
Total Alkalinity as $CaCO_3$	204			
Supersaturation as $CaCO_3$	4			
Undersaturation as $CaCO_3$	-			
Total Hardness as $CaCO_3$	1,860			
Calcium as $CaCO_3$	1,160			
Magnesium as $CaCO_3$	700			
Sodium and/or Potassium				
Sulfate as SO_4	1,781			
Chloride as NaCl	524			
Iron as Fe	2.3			
Barium as Ba	0.0			
Turbidity, Electric	6.4			
Color as Pt	7.5			
Dissolved Solids at 103° C.				
Total Solids at 103° C.				
Total Solids, Calculated				
Temperature °F.				
Carbon Dioxide, Calculated	13			
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 60° F.	3.00			
Suspended Oil				
Chloride, as Cl	318			

All Results Reported As Parts Per Million (mg/l)

Additional Determinations And Remarks Letter of recommendation attached.

Form No. 1

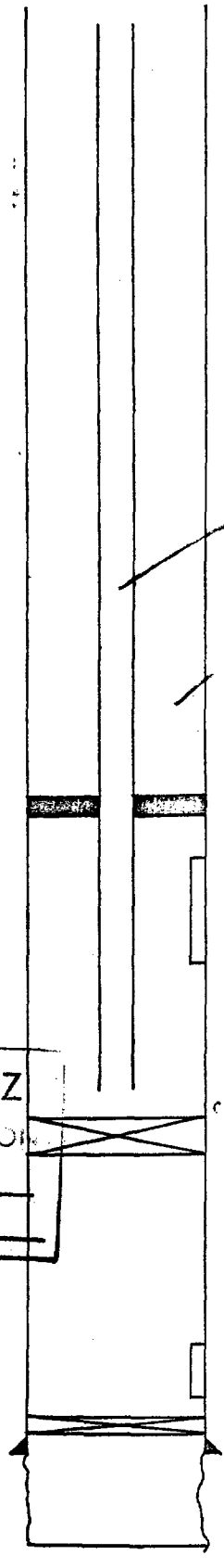
cc: Mr. R. N. Miller, Midland

BY ____

Waylan C. Martin, M. A.

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

GETTY OIL COMPANY
JUSTIS MC KEE UNIT WELL NO. 701
PROPOSED MECHANICAL SKETCH OF WELL COMPLETION



Tubing = 2-3/8" 4.7# J-55 Set @ 7573'

Tension Packer @ 7400'

7462'

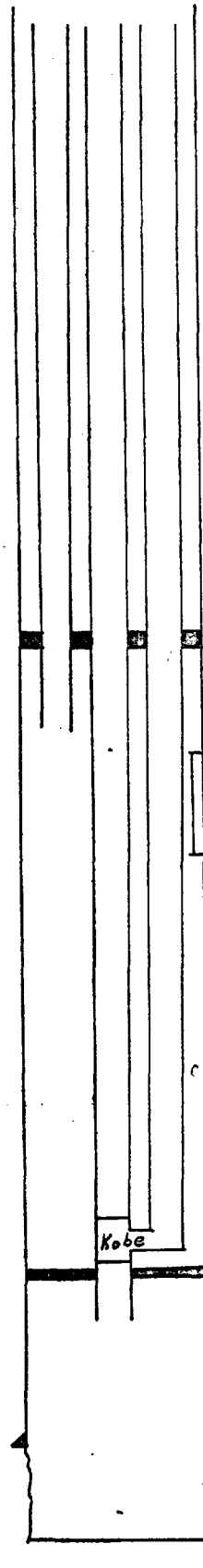
MC KEE PERFORATIONS
7529'

Bridge Plug @ 7700'.

ELLENBURGER = Abandoned

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 4371

GETTY OIL COMPANY
JUSTIS MC KEE UNIT WELL NO. 305
PROPOSED MECHANICAL SKETCH OF WELL COMPLETION



SHORT STRING = 2-3/8" 4.7# J-55
8R @ 7183'

Triple Packer @ 7100'

7185'

MC KEE PERFORATIONS

7264'

Kobe Pump
7" Baker Model "D" Packer @ 7850'

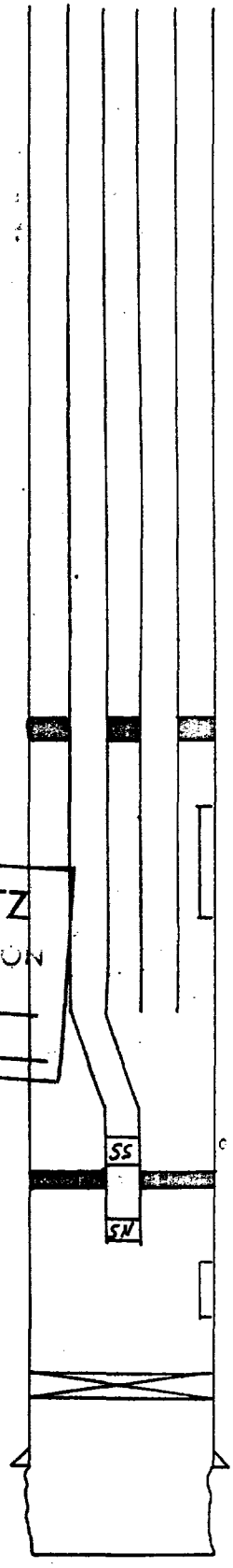
7" Casing @ 7948'

Ellenburger (Produced by Texaco)

TD= 7990'

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 4371

GETTY OIL COMPANY
JUSTIS MC KEE UNIT WELL NO. 117
PROPOSED MECHANICAL SKETCH OF WELL COMPLETION



SHORT STRING = 2-3/8" 4.7# J-55
C.S. Hydril @ 7367'.

Dual Packer @ 7100'

7210'

MC KEE PERFORATIONS

7320'

Baker Model "L" Sliding Sleeve @ 7613'
7" 23# Baker Model "D" Packer @ 7615'

7764'
ELLENBURGER PERFORATIONS
7782'

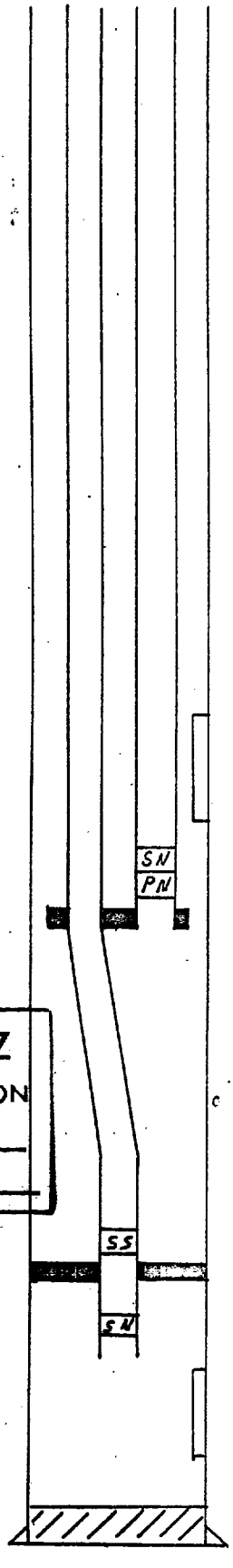
Cement Retainer @ 7849' & PBTD @ 7844'

7" Casing @ 7912'.

T.D. @ 7950'

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 4327

GETTY OIL COMPANY
JUSTIS MC KEE UNIT WELL NO. 108
MECHANICAL SKETCH OF WELL COMPLETION



Long String = 2-3/8" 4.7# J-55
8R W/Turned Down Couplings

5842'

Tubb Drinkard Perfs.

5960'

Seating Nipple @ 5960'
Perforated Nipple @ 5961'
Baker Parallel Anchor @ 5970'

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 4371

Baker Model "L" Sliding Sleeve @ 7214'
Baker Model "D" Packer @ 7219'

Seating Nipple @ 7251'

7325'

Mc Kee Perforations

7372'

PBTD 7484'

7" Casing 7520'

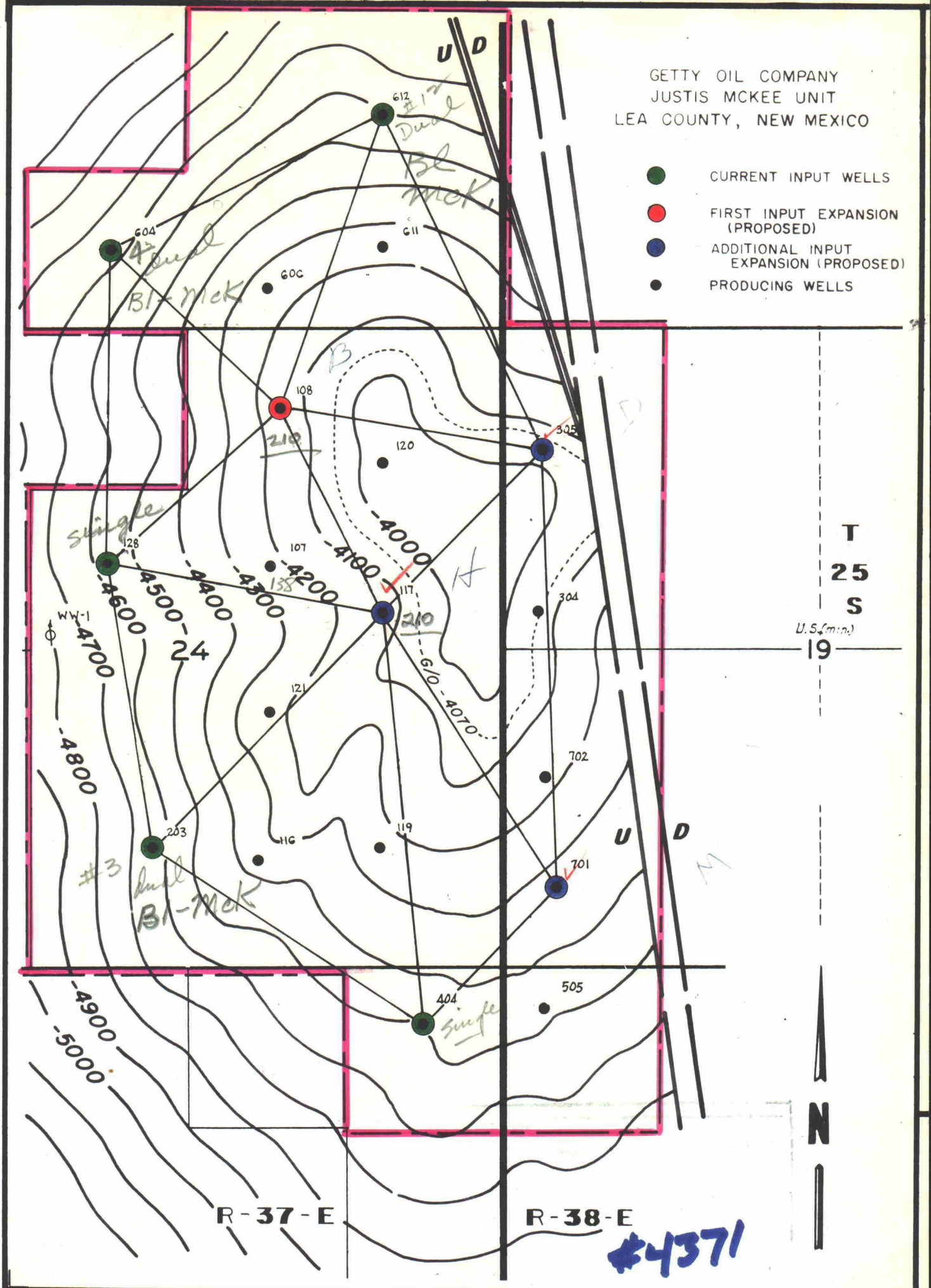
GETTY OIL COMPANY
JUSTIS MC KEE UNIT (EFFECTIVE 1-1-66)
LEA COUNTY, NEW MEXICO

WELL NO.	CUM. PRODUCTION TO 1-1-66 (BO)	(BW)	PRODUCTION RATE AT UNITIZATION (BOPD)	(BWPD)	PRODUCTION RATE AT PRESENT (BOPD)	(BWPD)	CUM. PRODUCTION SINCE 1-1-66 TO 6-1-70 (BO)	(BW)	INJECTION RATE INITIAL (BWPD)	PRESENT (BWPD) MAY TEST	CUM. INJECTION TO 6-1-70 (BW)
PRODUCERS											
107	118,948	-	12 (6-65)	-	1 (2-70)	0	3,760	2,308	-	-	-
116	53,081	-	1	0	3	0	6,945	2,119	-	-	-
119	89,283	-	5	0	1	1	4,529	1,298	-	-	-
120	35,503	-	1	-	SHUT IN	-	28	0	-	-	-
121	92,995	-	5	0	SHUT IN	-	1,695	202	-	-	-
304	67,289	-	3	-	2	0	2,885	291	-	-	-
505	26,810	-	SHUT IN	-	-	-	0	567	-	-	-
606	160,516	-	22	-	26	0	28,062	1,045	-	-	-
611	120,614	-	3 (6-65)	-	SHUT IN	-	0	0	-	-	-
702	104,114	-	9	-	SHUT IN	-	1,265	103	-	-	-
PROPOSED INJECTORS											
108	126,891	-	1	0	1	0	1,086	229	-	-	-
117	54,060	-	3	0	1	0	2,994	1,293	-	-	-
305	70,704	-	2 (11-65)	-	1	1	11,485	336	-	-	-
701	83,666	-	12	-	SHUT IN	-	3,798	1,448	-	-	-
PRESENT INJECTORS											
128	*Drilled in 11-68		-	-	-	-	-	-	310	111	98,212
203	*	-	-	-	-	-	-	-	306	232	297,855
404	31,759	-	SHUT IN	-	-	-	185	0	273	151	177,046
604	*	-	-	-	-	-	-	-	106	87	80,915
612	*	-	-	-	-	-	-	-	181	75	66,523
UNIT TOTAL	1,236,233	-	79	.54	56	2	68,717	11,239	1,185	656	720,551

*Did not produce out of Justis Mc Kee Zone.

6-25-70
/bh

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 2
CASE NO. 437


GETTY OIL COMPANY
JUSTIS MCKEE UNIT
LEA COUNTY, NEW MEXICO
CURRENT INPUT WELLS
FIRST INPUT EXPANSION (PROPOSED)
ADDITIONAL INPUT EXPANSION (PROPOSED)
PRODUCING WELLS
U D
612
#1 Dual Bl-McK
604
A Dual Bl-McK
611
60C
108
210
120
305
single
128
107
135
117
210
304
WW-1
-4000
-4100
-4200
-4300
-4400
-4500
-4600
-4700
-4800
-4900
-5000
24
G/O -4070
121
702
203
116
119
701
#3 Dual Bl-McK
404
single
505
T 25 S
U.S.(m.n.)
19
N
R-37-E
R-38-E
#4371

Justis McKee Unit Well 108-13