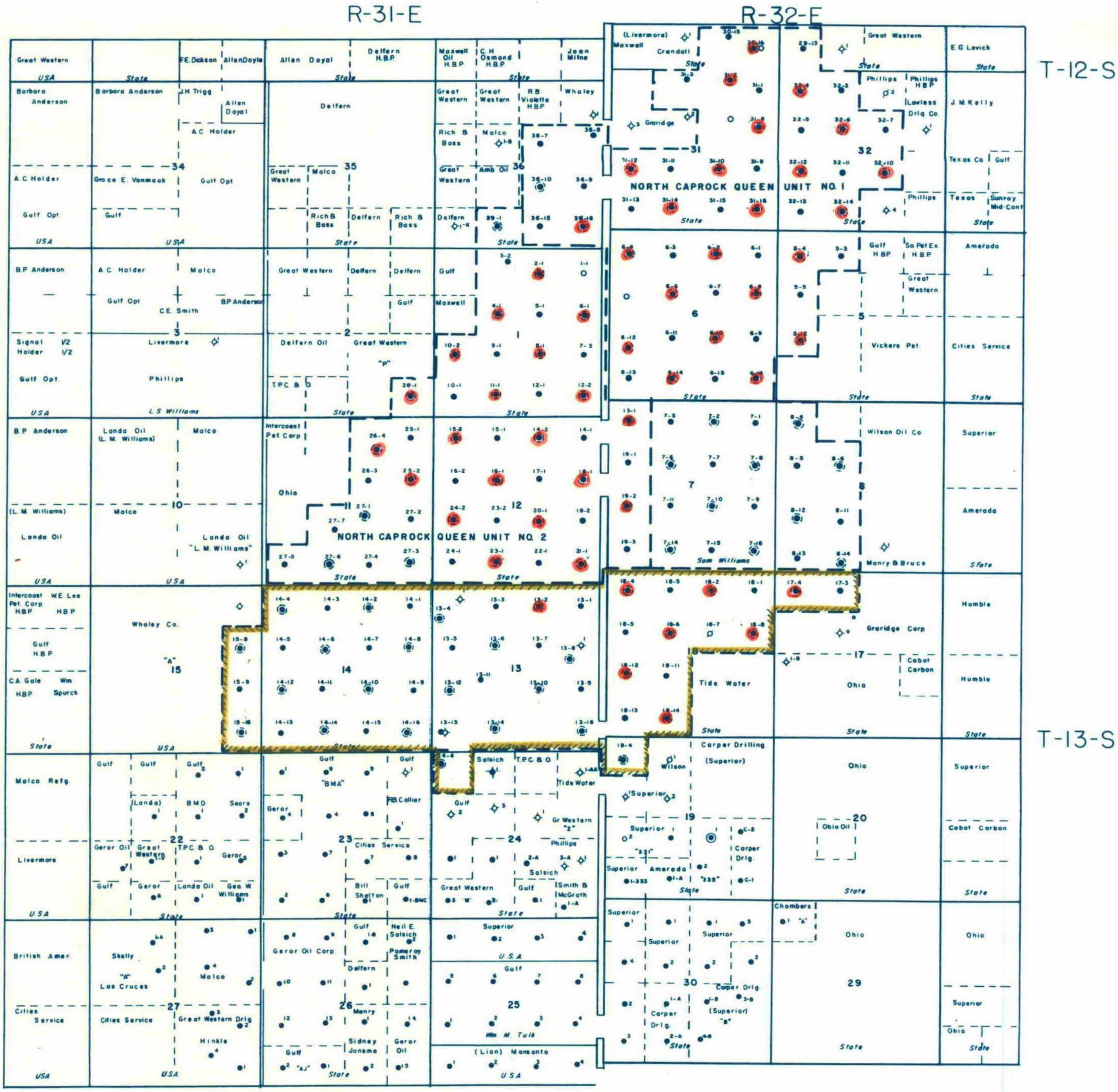
BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
GW EXHIBIT NO. 1-5
CASE NO. 1721

NORTH CENTRAL CAPROCK QUEEN UNIT

GREAT WESTERN DRILLING COMPANY, OPERATOR

EXHIBITS

ACT HEARING



NORTH CENTRAL CAPROCK QUEEN UNIT

51
35
255
153
1785

OPERATED BY

GREAT WESTERN DRILLING COMPANY

CAPROCK QUEEN POOL

LEA AND CHAVES COUNTIES, NEW MEXICO

SCALE

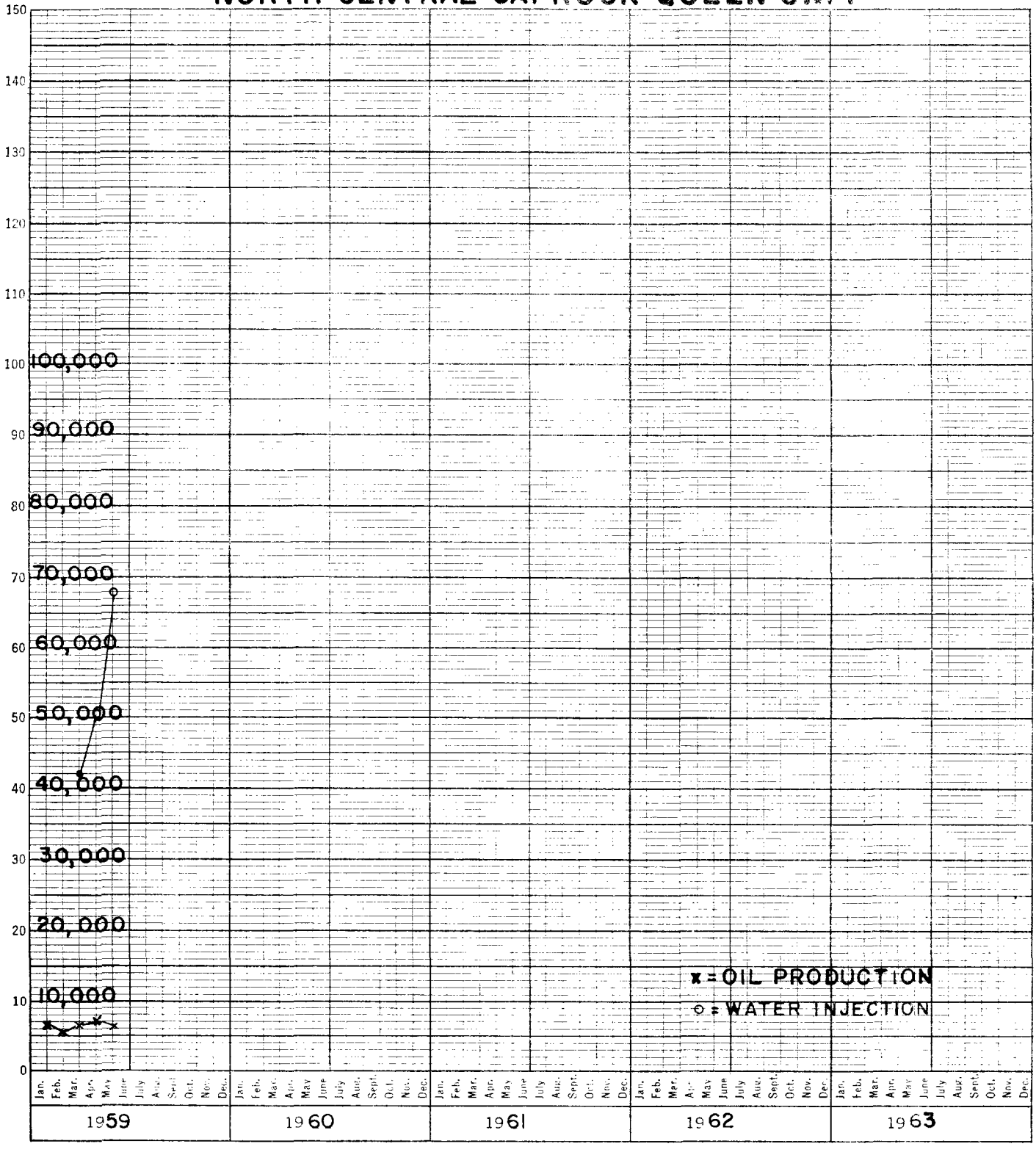
0 1/2 MI 1 MI

LEGEND

- ● Producer
- ◉ Injection well
- Proposed injection well
- ◇ Dry hole

#1

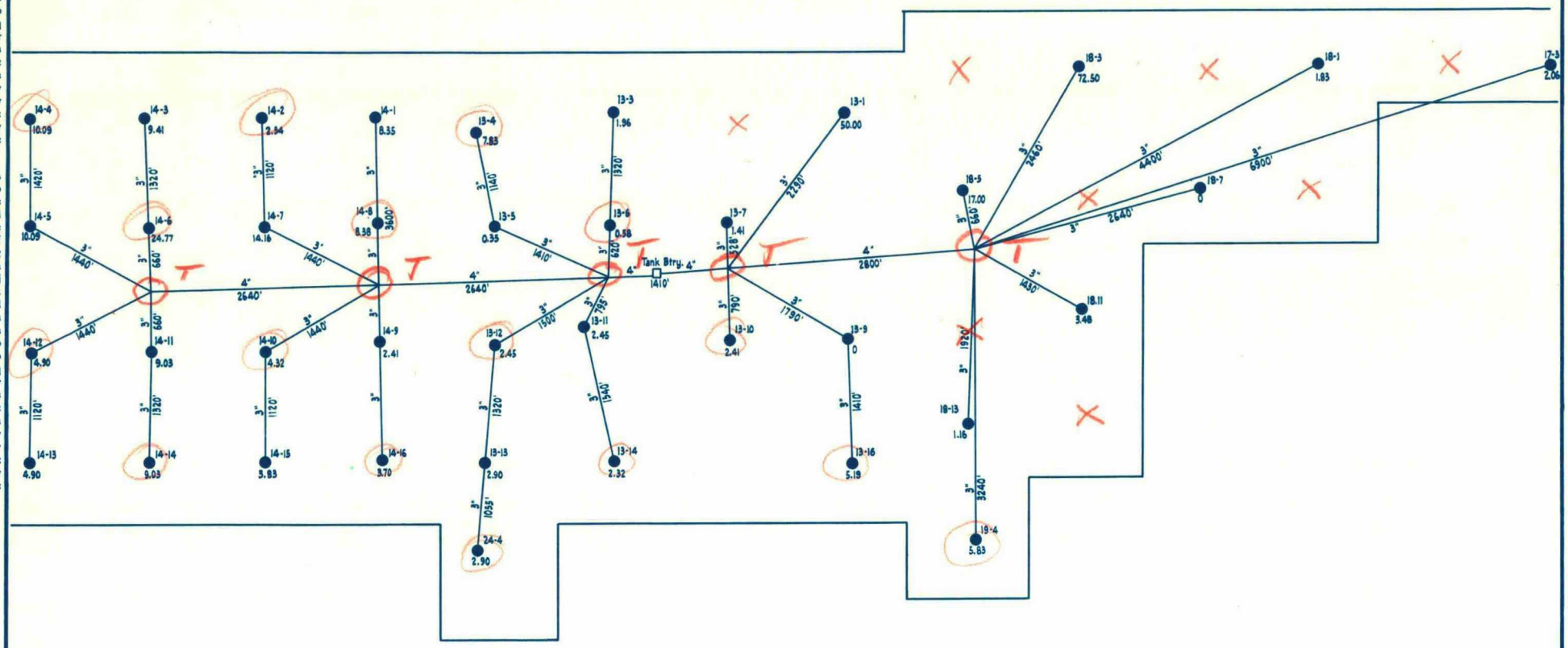
NORTH CENTRAL CAPROCK QUEEN UNIT



SCHEMATIC DIAGRAM

CENTRALIZED FLOW LINES
NORTH CENTRAL CAPROCK QUEEN UNIT

GREAT WESTERN DRILLING COMPANY, OPERATOR



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	DEPT.

GREAT WESTERN DRILLING COMPANY
MIDLAND, TEXAS

#3

SCHEMATIC DIAGRAM

CENTRAL TEST STATION
NORTH CENTRAL CAPROCK QUEEN UNIT

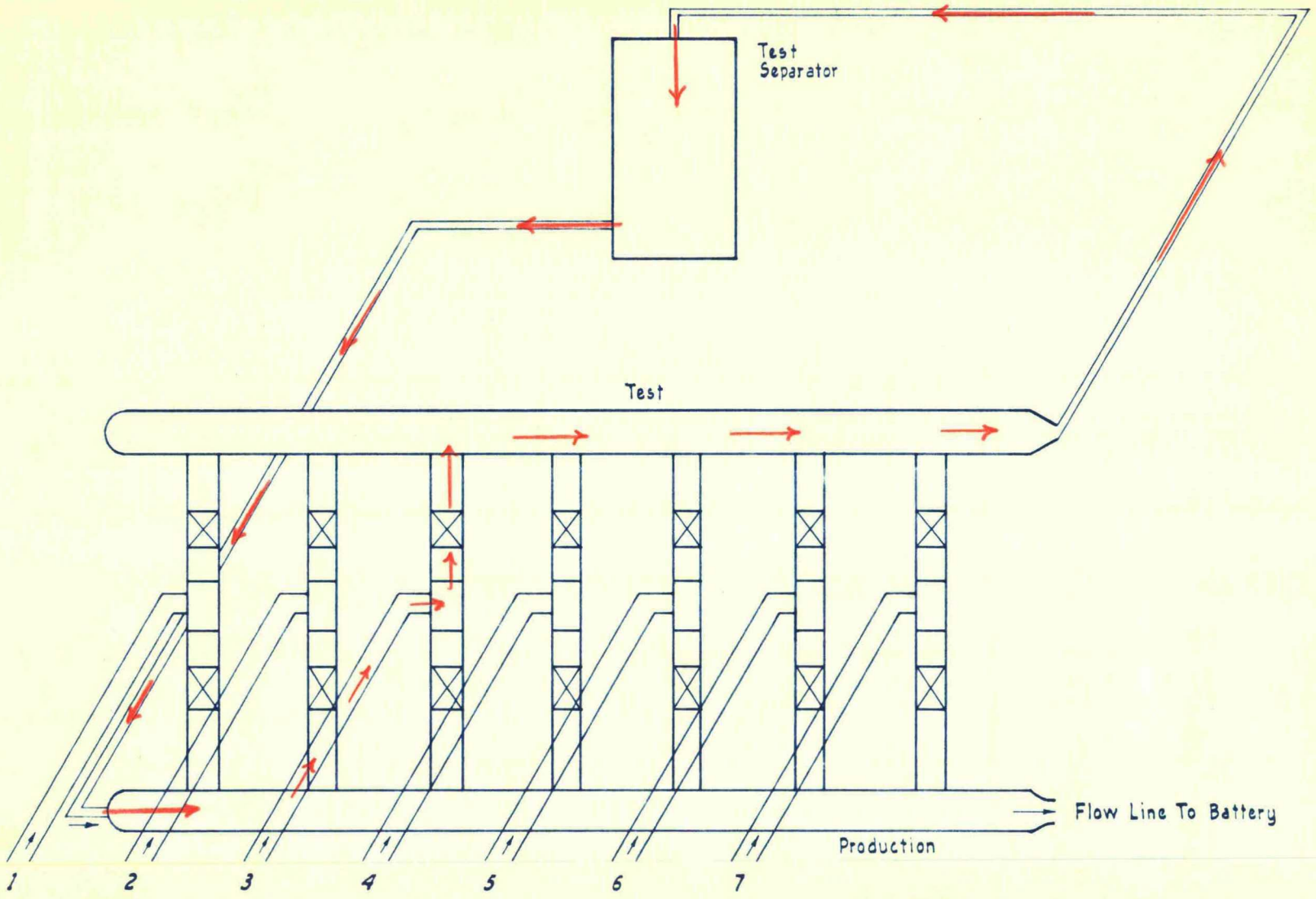


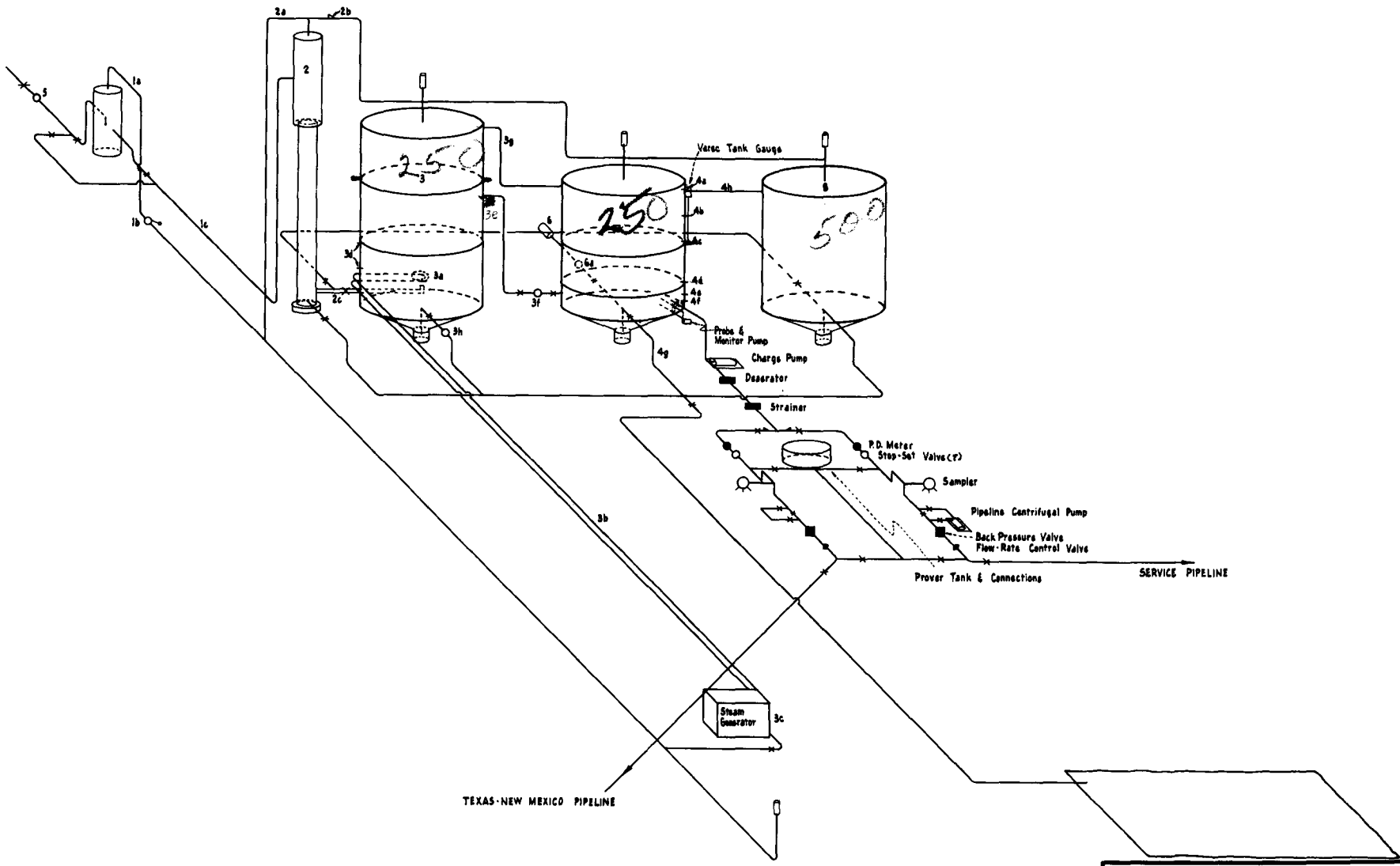
Exhibit No. 4

SCHEMATIC "ACT"

NORTH CENTRAL CAPROCK QUEEN UNIT

GREAT WESTERN DRILLING COMPANY, OPERATOR

TO SERVICE & TEXAS-NEW MEXICO PIPELINES



GREAT WESTERN DRILLING COMPANY

MIDLAND, TEXAS

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CHECKED BY:	DATE:
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	DEPT.

Exhibit No. 5

EXPLANATION OF FLOW AND COMPONENTS
PROPOSED TREATING AND AUTOMATIC CUSTODY TRANSFER SYSTEM

NORTH CENTRAL CAPROCK QUEEN UNIT
LEA AND CHAVES COUNTIES, NEW MEXICO

EXPLANATION OF FLOW AND COMPONENTS
PROPOSED TREATING AND AUTOMATIC CUSTODY TRANSFER SYSTEM
NORTH CENTRAL CAPROCK QUEEN UNIT
LEA AND CHAVES COUNTIES, NEW MEXICO

1. SEPARATOR: Oil comes from the wells to this separator. This separator is a two phase separator which separates the oil and water from the gas. The gas passes through line 1-A to the steam generator which is used for heating treating water.

   (A) Flow line to steam generator.

   (B) Back pressure valve: This valve holds five to ten pounds of pressure on the separator and allows the separator to build up enough pressure to lift fluid into the boot.

   (C) Fluid line from separator to boot: Oil and water from the separator pass through this line to the upper portion of the boot.

2. BOOT: The top eight feet of this boot serves as a gas expansion section and allows gas to pass through a line to the steam generator.

   (A) Gas line to steam generator.

   (B) Check valve: Allows gas to flow from storage tanks to steam generator.

   (C) Flow line from boot to treating tank: Passes oil and water from boot into bottom of treating tank below spreader and heat exchangers.

3. TREATING TANK: The lower section of this tank contains hot water which is heated by coils from the steam generator. It also acts as a free water knockout. The upper portion of the tank is available for additional storage space.

   (A) Heat exchanger.

   (B) Steam line and return.

   (C) Steam generator.

   (D) Interface control: Controls the position of the interface between oil and water by opening and closing valve No. 3-H and allowing water to drain from the tank. The bottom control at 3-D activates an alarm which notifies the pumper that the interface has fallen too low in the tank.

EXPLANATION OF FLOW AND COMPONENTS
PROPOSED TREATING AND AUTOMATIC CUSTODY TRANSFER SYSTEM
NORTH CENTRAL CAPROCK QUEEN UNIT
LEA AND CHAVES COUNTIES, NEW MEXICO

1. SEPARATOR: Oil comes from the wells to this separator. This separator is a two phase separator which separates the oil and water from the gas. The gas passes through line 1-A to the steam generator which is used for heating treating water.

   (A) Flow line to steam generator.

   (B) Back pressure valve: This valve holds five to ten pounds of pressure on the separator and allows the separator to build up enough pressure to lift fluid into the boot.

   (C) Fluid line from separator to boot: Oil and water from the separator pass through this line to the upper portion of the boot.

2. BOOT: The top eight feet of this boot serves as a gas expansion section and allows gas to pass through a line to the steam generator.

   (A) Gas line to steam generator.

   (B) Check valve: Allows gas to flow from storage tanks to steam generator.

   (C) Flow line from boot to treating tank: Passes oil and water from boot into bottom of treating tank below spreader and heat exchangers.

3. TREATING TANK: The lower section of this tank contains hot water which is heated by coils from the steam generator. It also acts as a free water knockout. The upper portion of the tank is available for additional storage space.

   (A) Heat exchanger.

   (B) Steam line and return.

   (C) Steam generator.

   (D) Interface control: Controls the position of the interface between oil and water by opening and closing valve No. 3-H and allowing water to drain from the tank. The bottom control at 3-D activates an alarm which notifies the pumper that the interface has fallen too low in the tank.

(E) Flow line to surge tank.

(F) Automatic valve: Normally open. Allows oil to flow from treating tank to surge tank. Fails open.

(G) Flow line to surge tank for high fluid level in treating tank.

(H) Automatic valve: Activated by interface control 3-D. Fails closed.

4. SURGE TANK: Oil is run to the pipeline from this tank, normally between the levels of 4-D and 4-C.

(A) Emergency shutin control: This control closes valve No. 5, which builds up pressure in the flow lines and shuts in producing wells.

(B) High level alarm control: When oil reaches the level of control No. 4-B in the surge tank, an alarm is activated which notifies the pumper that a high level has built up in the surge tank. This control also closes valve No. 3-F which allows the treater tank to fill to line 3-G and overflow through 3-G into the surge tank, thus allowing the top portion of the treater tank to be utilized for storage.

(C) High working level control: Opens valve No. 7, activates charge pump and pipeline pump.

(D) Low working level control: Closes valve No. 7, shuts down charge pump and pipeline pump.

(E) Low level alarm: Activates an alarm system which notifies pumper that the fluid level in surge tank is dangerously low.

(F) Low level shutin control: Shuts down circulation pump No. 6 when fluid reaches this level.

(G) BS&W drawoff line.

(H) Flow line to overflow tank No. 8.

5. AUTOMATIC VALVE: This valve is closed by high level shutin control No. 4-A and builds up a pressure in the flow lines. When this pressure is built up in the lines, the producing wells will be shut in by a pressure switch which cuts off power to the pump motor and requires manual restarting.

6. CIRCULATING PUMP: Activated by monitor when a high BS&W cut is picked up by the monitor. The monitor turns the pump off when it detects good oil in the surge tank.

   (A) Automatic Valve: Activated by BS&W monitor. Fails closed.

7. AUTOMATIC VALVE: Allows oil to pass from the surge tank into Automatic Custody Transfer System. Opened by high working level control No. 4-C. Closed by low working level control No. 4-D. Also closed by monitor, if monitor picks up bad oil. Fails closed.

AUTOMATIC CUSTODY TRANSFER SYSTEM

The Automatic Custody Transfer System is activated by high working level control No. 4-C in the surge tank. 4-C opens valve No. 7, starts the charge pump and the pipeline pump, thus starting merchantable oil through one or both of the skid mounted units. Oil passes through the charge pump and into the deaerator.

DEAERATOR: Removes free air or gas, should it accidentally get into the system. Oil passes from the deaerator into the strainer.

STRAINER: The function of the strainer is to trap any foreign objects which might accidentally get into the line. The oil is then metered by positive displacement meters.

POSITIVE DISPLACEMENT METERS: These meters are positive displacement type with counters reading in "barrels", "tenths", and "hundredths". Each meter is equipped with a temperature compensator to correct all measurements to a base of 60 degrees fahrenheit. A lockout safety device on the meter, which requires manual reset, shuts down the ACT System in the event the counter stops functioning properly. The counter is equipped with a ticket printer. By inserting a ticket in the printer at the beginning of a measurement period and printing the opening reading, the ticket is automatically locked in place and cannot be removed without mutilation until the closing reading is printed. Historical data shows that these meters are accurate to a greater degree than .1 of 1%. In order to prove these meters, they must repeat a measurement within .05 of 1% to be acceptable. The oil passes from the positive displacement meters through the stop set valve.

STOP SET VALVE: This valve is closed by mechanical linkage when a predetermined amount of oil has passed through the meter. The oil then passes into a vertical sample riser where a sample will be taken of approximately every 10 barrels of oil.

SAMPLER: The sampler will be driven by electric impulses from the meter, so that a small sample for each 10 barrels of oil which pass through the meter is drawn into a hermetically sealed sample container. The oil then passes into the pipeline pump.

PIPELINE PUMP: A pump is required to deliver oil to Service Pipeline Company. A pump is not required to deliver oil to Texas-New Mexico Pipeline Company. The oil then passes through a back pressure valve.

BACK PRESSURE VALVE: This valve merely holds back pressure on the system in order to keep the lines full at all times to accurately guage the oil. The oil is then passed through flow-rate control valve and into the pipeline. The purpose of the flow-rate control valve is to regulate the flow at a predetermined rate to either or both pipelines.

PROVER TANK: The prover tank is mounted between the two ACT skids. The meters are proved by filling this prover tank behind the flow-rate control valves in order to prove under the same conditions under which oil is normally run.

MONITOR: The BS&W cut monitor operates on a dielectric constant principle and permits only merchantable oil to pass through the meter. If the set value of 1% BS&W is exceeded, the monitor closes valve No. 7 and shuts down the charge pump and the pipeline pump. It also opens valve No. 6-A and starts the recirculating pump No. 6 and diverts the non-merchantable oil back through the treating system. As soon as the oil becomes acceptable to the monitor, the bypass closes and shipping resumes.