MULTICOMPLETED WELLS
CASED WITH 2-7/8-INCH TUBING

OPERATED BY THE HUMBLE DIVISION

December 31, 1959

State	Depth Range feet	Dual	Triple	Quadruple
Mississippi	10,000-12,000	3	1	-
Texas	2,000- 4,000	24[a,b]	8[c]	3
	4,000- 6,000	6[d]	1	-
	6,000- 8,000	2	3	-
	8,000-10,000	1	4	2
TOTAL		36	17	5

[a]Includes 14 wells with parallel strings of 2-7/8- and 5-inch casing.
[b]Includes 1 dual waterflood injection well.
[c]Includes 1 triple completion with 2 waterflood injection intervals and 1 oil producing interval and 1 triple completion with 1 waterflood injection interval and 2 oil producing intervals.
[d]Includes 2 wells with parallel strings of 2-7/8- and 4-1/2-inch casing.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 1
CASE NO.

Petroleum Engineering Division
Subsurface Engineering Practices Section
CBC:nt February 3, 1960

ECONOMIC ANALYSIS

2-7/8-INCH O. D. CASING COMPLETIONS[1]

NEW MEXICO

HUMBLE OIL & REFINING CO.

February 1, 1960

Field	County	Average Depth-Ft.	Number Completions	Reduction in Well Cost-%
Langlie-Mattix	Lea	3729	8	24
Eumont	Lea	3875	1	20
West Henshaw-Grayburg	Eddy	2975	2	22
Totals		3605	11	23

Note 1: All wells completed are single zone completions.

4-1/2" x 2-7/8" Dual Completion

Special Equipment

Well Head and Tubing Heads

A special dual string casing head and slim-designed parallel tubing heads shown in Drawing A are used for this type completion. The casing head is a conventional 2000 psi working pressure, 4000 psi test 10-3/4-inch bowl cast with a 9-5/8-inch casing pin. This allows more room in the bowl for the eccentric slip type casing hangers. The 4-1/2-inch casing is landed on the combination slips and slip bowl; one side of the combination provides slips for the 4-1/2-inch casing and the opposite side contains the bowl for running and landing the 2-7/8-inch casing. A three segment eccentric slip is used to suspend the 2-7/8-inch casing with the thickest segment toward the 4-1/2-inch casing to provide maximum center line distance between casing strings. A conventional split packing element sandwiched by steel packing rings and compressed by the packing gland nut provides the seal around the casing in the casing bowl.

The 4-1/2 x 2-3/8-inch and 2-7/8 x 1.9-inch tubing heads are 3000 psi working pressure, 6000 psi test. Clearances are such that after installing the recessed master valve on the 2-7/8-inch casing either tubing head can be installed or removed without interference with the other. This is rather unique considering that the center line distance between casing strings is only 5-3/16-inches. A 5-1/2-inch casing thread is used on the exterior of the 4-1/2-inch tubing head for use in connecting blowout preventers. An adaptor from the 2-7/8-inch tubing head back to a 2-7/8-inch EUE tubing thread or the 2-7/8-inch EUE thread in the recessed valve is available for attaching blowout preventer equipment.

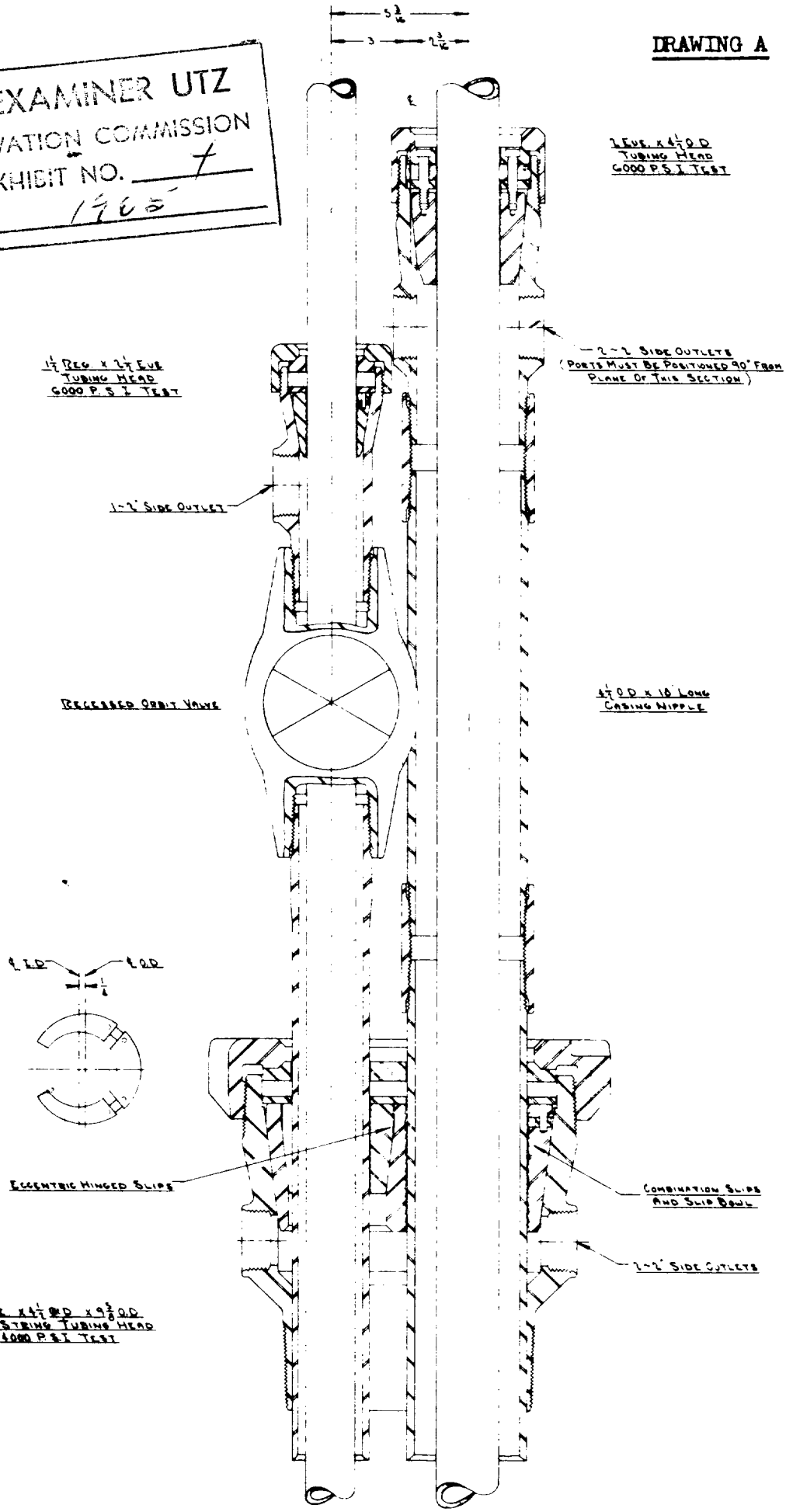
Centralizers

Special meshing spiral bar type centralizers are used on both strings. Sketches of the centralizers are shown in Drawing B. The advantage of these centralizers is that they allow maximum centralization and minimum interference when passing each other while running them in the hole. In the 8-3/4-inch drilled hole this allows .318-inch clearance when passing centralizers and .250-inch minimum clearance when passing the 2-7/8-inch centralizers by the 4-1/2-inch casing collars.

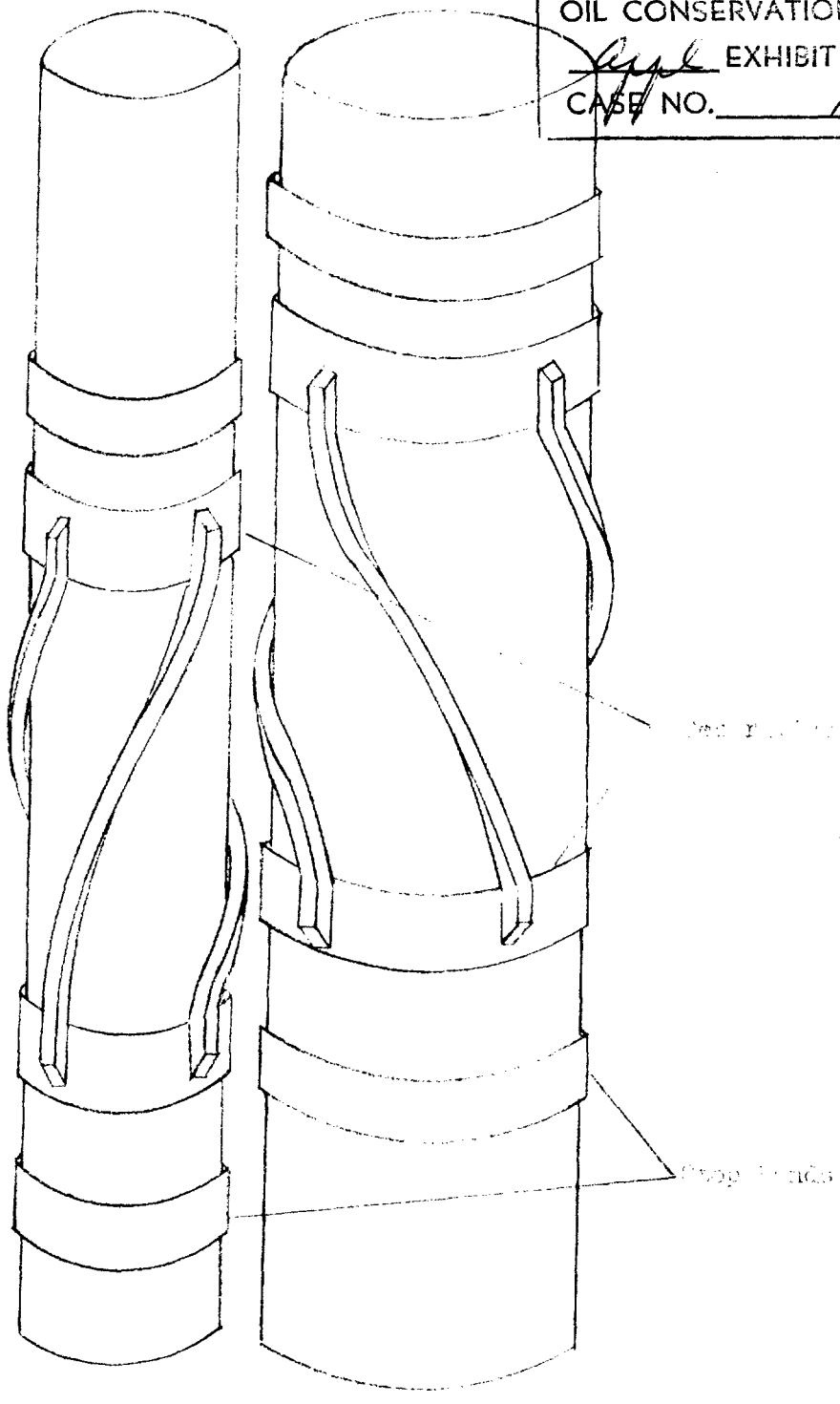
Five-sixteenths bar elements were used in constructing the centralizers and one-eighth-inch thick metal bands were welded to the casing for centralizer stop bands. Four-and-one-half-inch centralizer bars and 2-7/8-inch centralizers bars were spiraled in opposite directions to allow the bars to mesh. Meshing of the bars provides greater clearance when passing centralizers during running of casing than when one bar is required to ride over the other. An additional .188 inches is gained when passing centralizers in this manner.

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 1963

DRAWING A



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Kuyk EXHIBIT NO. 5
CASE NO. 1905



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Appl EXHIBIT NO. 6
CASE NO. 1925

Proposed Procedure

1. Drill surface hole and set 9-5/8-inch O. D. surface casing to 1200 feet. Cement back to surface with 8% gel cement.

2. Install special made casing bowl below blowout preventer and drill 8-3/4-inch hole to 7000 feet (total depth).

3. Run standard 4-1/2-inch casing through normal blowout preventers and land same on eccentric slips in the casing bowl.

4. Replace preventer rams with offset 2-7/8-inch rams.

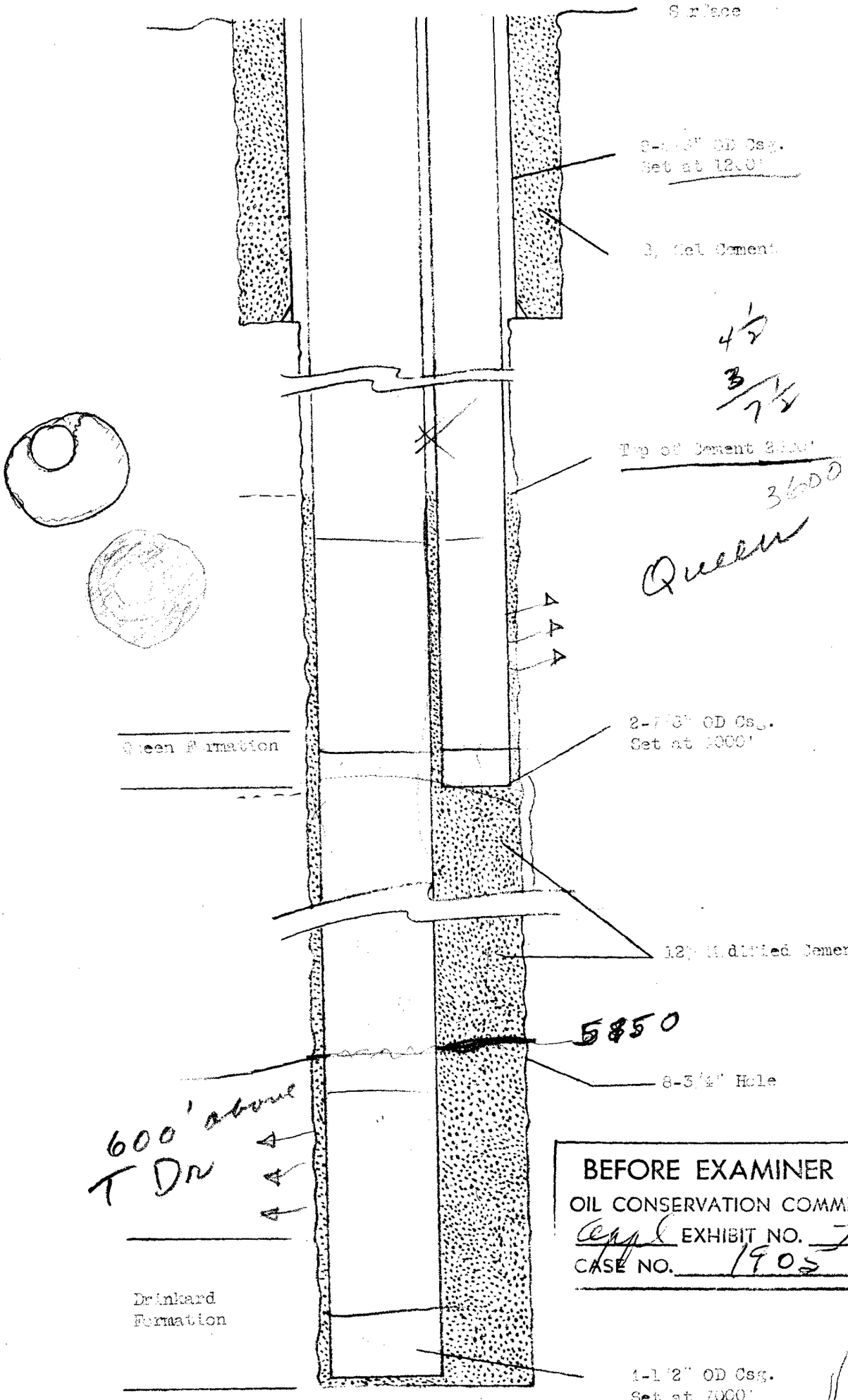
5. Run 2-7/8-inch non-upset casing and land same on eccentric slips in the casing bowl.

6. Prior to cementing, establish circulation through each casing string and displace mud from the 2-7/8-inch string with suitable completion fluid.

7. Cement in conventional manner through 4-1/2-inch casing using 12-percent modified cement. Sufficient volume of cement will be used to bring top of cement to 2800 feet.

8. Allow cement to set a minimum of 48 hrs.

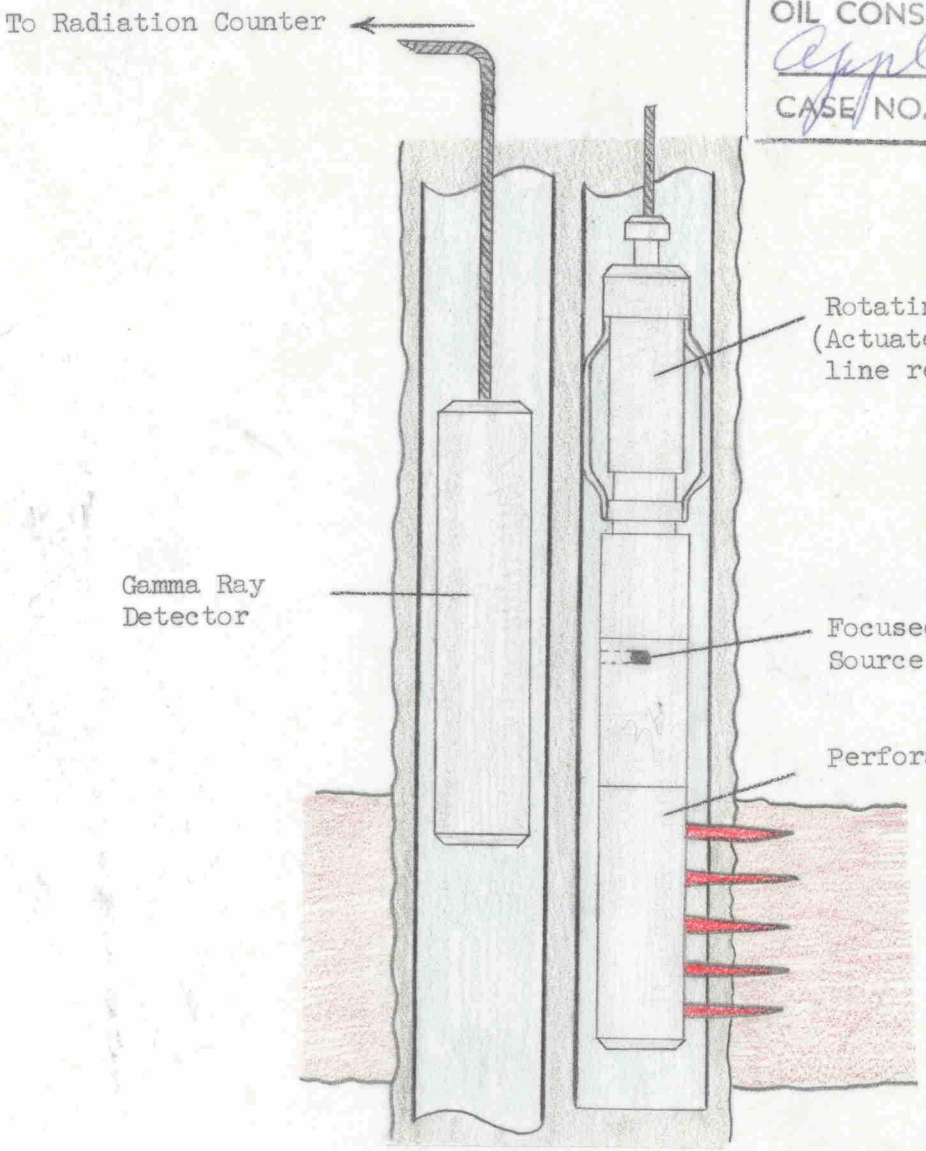
Note: Centralizers will be used through all pays.



BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 1902

Schematic Diagram
1-1/2" x 2-7/8" Dual Completion
New Mexico State M-20
Langlie Mattix Field
Lea County, New Mexico

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
Appl EXHIBIT NO. 8
CASE NO. 1905

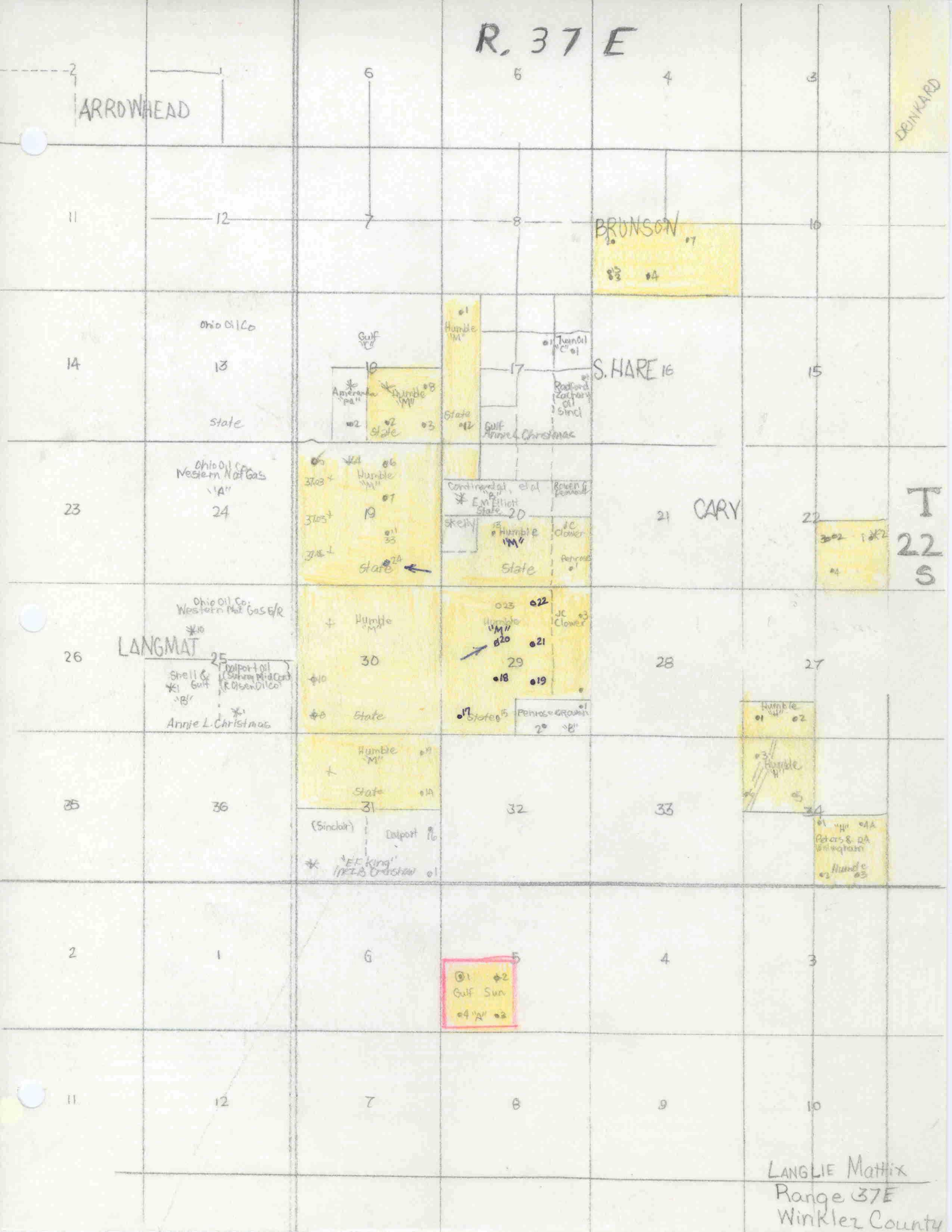


DIRECTIONAL PERFORATING TECHNIQUE UTILIZING
RADIATION DETECTOR

Equipment and techniques for perforating independently run multiple casing strings have been perfected and successfully employed. Perforating such completions is accomplished by utilizing a rotating device and a focused radioactive source attached to the gun assembly in one casing string, and a separate radioactive detector in an adjacent string as illustrated in the above sketch. The gun assembly containing the focused source is rotated by an indexing tool as the wireline is reciprocated. The detector reflects the orientation of the source and the gun can be positioned to fire away from the adjacent string.

LANGLIE-MATTIX
LEA COUNTY
NEW, MEX

→ Denotes tubingless Comp.


R. 37 E
ARROWHEAD
DRINKARD
BRUNSON
Ohio Oil Co
Gulf
Humble "M"
Twin Oil "C"
S. HARE
Amerada "PA"
Humble "M"
State
Radford Zachary Oil Sinclair
Gulf
Annie L Christmas
Ohio Oil Co. Western Nat Gas "A"
Continental et al "B"
E M Elliott State
Skelly
Humble "M"
State
J C Clower
Penrose
CARY
T 22 S
Ohio Oil Co. Western Nat Gas E/R
LANGMAT
Shell & Gulf "B"
Annie L. Christmas
Humble "M"
State
J C Clower
Penrose Crown "B"
Humble "H"
Humble "M"
State
(Sinclair)
"E F King"
Peters & DA Willingham
Humble
Gulf Sun "A"
LANGLIE Mattix
Range 37E
Winklez County

LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE