

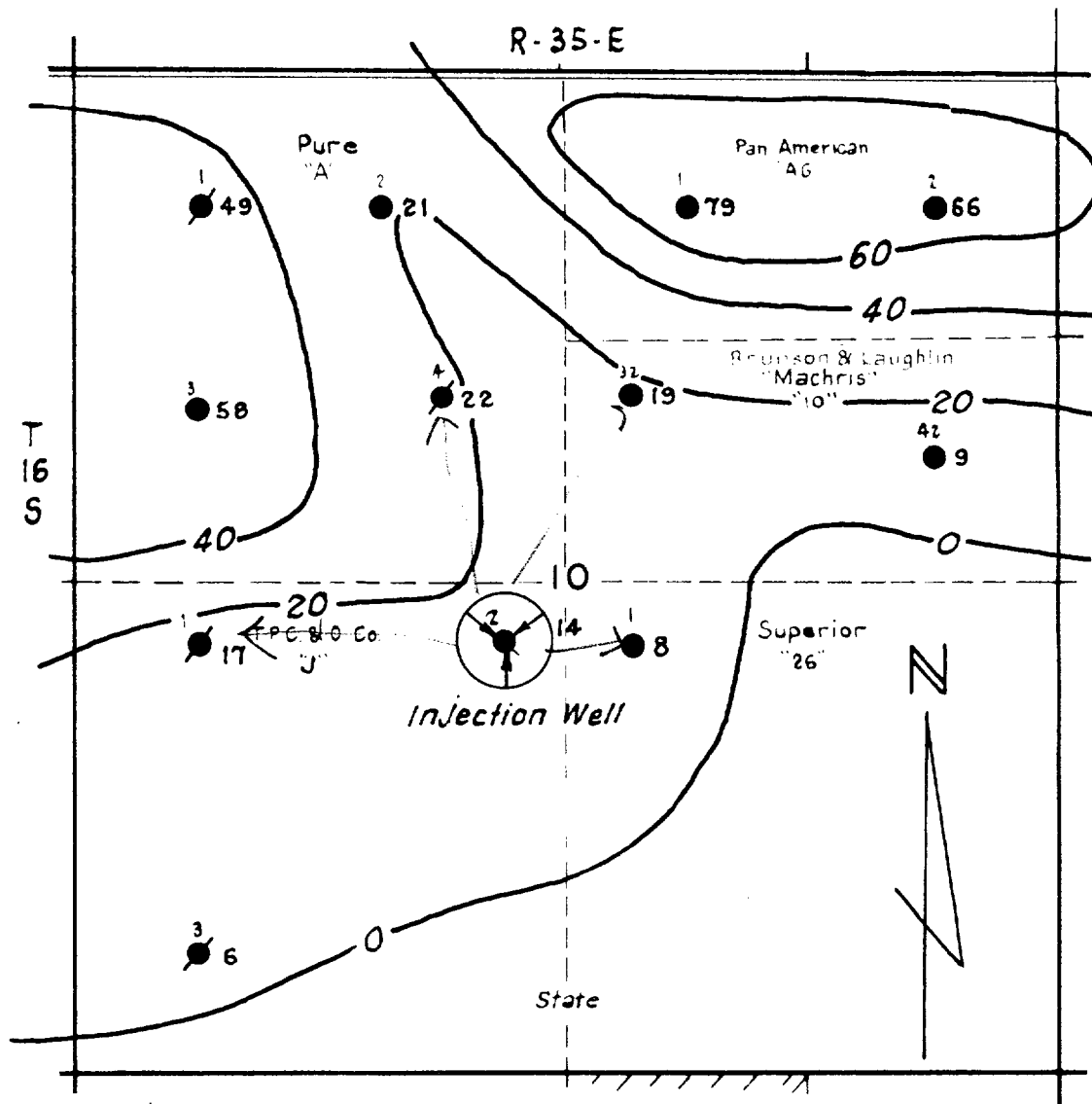
TOWNSEND WOLFCAMP FIELD
LEA COUNTY, NEW MEXICO
WELL STATUS -- JUNE 1961
ENGINEERING STUDY AREA (EXCLUDES T-15-S)

	SOUTH AREA		NORTH AREA		TOTAL FIELD	
	PRODUCING WELLS (LESS THAN 200 BOPM)	SHUT IN WELLS	PRODUCING WELLS (LESS THAN 200 BOPM)	SHUT IN WELLS	PRODUCING WELLS (LESS THAN 200 BOPM)	SHUT IN WELLS
*AUSTRAL OIL COMPANY, INC.	9 (1)	-	5 (1)	-	14 (2)	-
**BRUNSON & LAUGHLIN	2	-	-	-	2	-
*CABOT CORPORATION	6 (2)	-	2 (1)	-	8 (3)	-
*CHRISTMANN & WEIBORN	-	-	2 (1)	3	2 (1)	3
*GULF OIL CORPORATION	2 (1)	-	1	-	3 (1)	-
*HUMBLE OIL & REFINING COMPANY	4 (1)	3	-	1	4 (1)	4
M. A. MACHERIS	-	-	2	-	2	-
MOBIL OIL COMPANY	-	-	1	-	1	-
*PAN AMERICAN PETROLEUM CORPORATION	3	-	-	1	3	1
*PURE OIL COMPANY	4 (3)	2	-	-	4 (3)	2
*SHELL OIL COMPANY	17 (1)	1	6 (5)	1	23 (6)	2
SIMMONS, MARKHAM & CONE	1 (1)	2	-	-	1 (1)	-
SKELLY OIL COMPANY	1	-	-	-	1	-
SOUTHERN PETROLEUM EXPLORATION COMPANY	3 (1)	1	-	-	3 (1)	1
SOUTHERN UNION PRODUCTION COMPANY	-	-	1	-	1	-
*SUPERIOR OIL COMPANY	1	-	1 (1)	-	2 (1)	-
*TEXAS PACIFIC COAL & OIL	4	3	-	-	4	3
TIDEWATER OIL COMPANY	-	-	1 (1)	-	1 (1)	-
UTEX EXPLORATION COMPANY, INC.	-	-	2 (2)	1	2 (2)	1
TOTALS	57 (11)	12	24 (12)	7	81 (23)	19

*Companies participating in Pilot Flood Project.
**Non-participating but agreeable to project.

Shell Oil Co.
Exhibit #4
Case. 2359

Townsend Wolfcamp Field
 Lea County, New Mexico
 Pilot Waterflood Test Area
 Net Pay Isopachous Map



Legend:

Scale 1" = 1000'
 Contour Interval 20'

Well No.

● Net feet of pay

● (Shut-In Well)

Shell Oil Co.

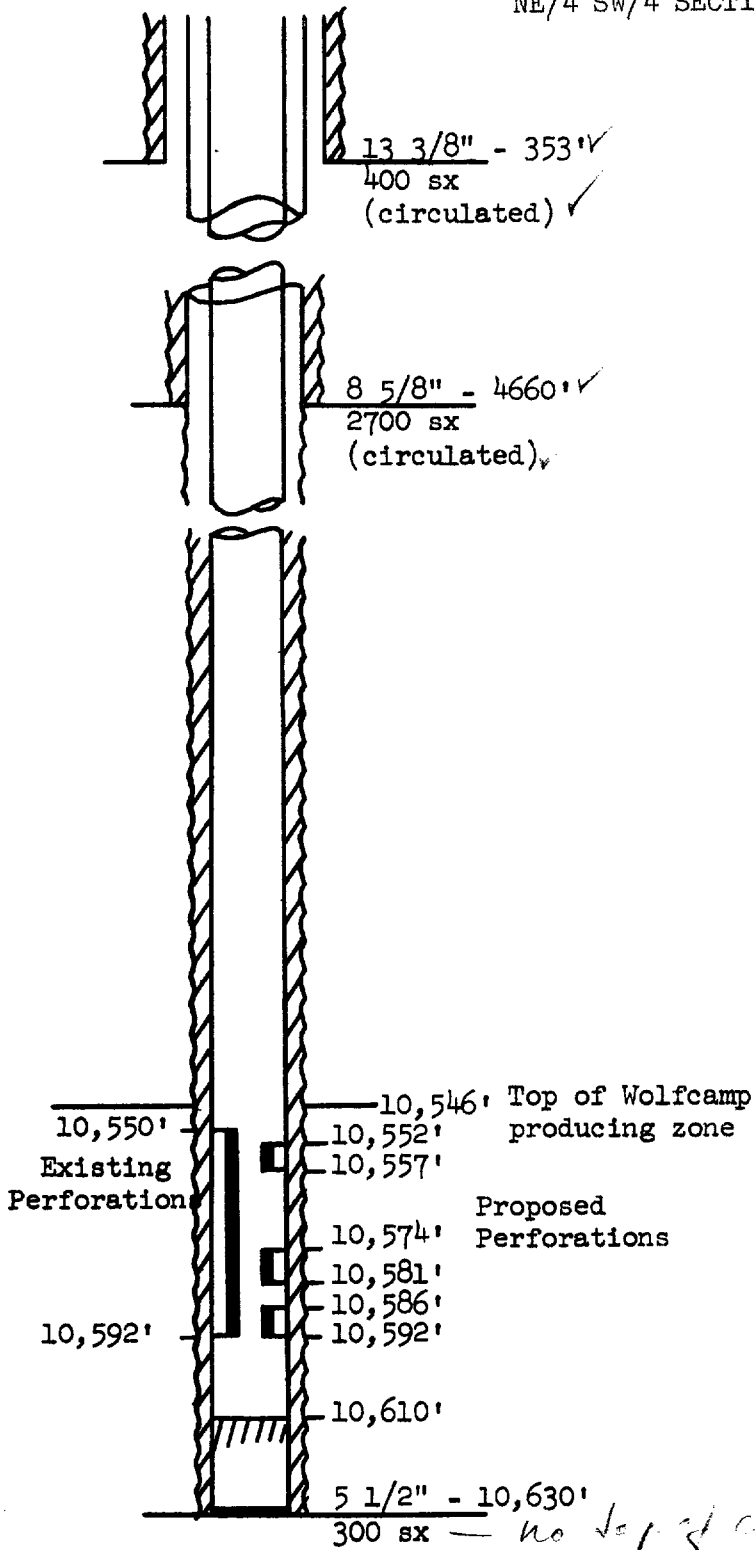
Exhibit #7

Case 2359

UST

NE/4 SW/4 SECTION 10-16S-35E

WORK PROGRAM



1. Run 2" N-80 tubing with packer to 10,500'.
2. Squeeze perforations 10,550'-10,592' (Wolfcamp) with 300 sacks cement.
3. Run bit and drill collars and drill out cement to 10,610'. Pressure test.
4. Spot 500 gallons 15% MCA on bottom. Pull tubing, bit, and drill collars.
5. Perforate 5 1/2" casing opposite Wolfcamp at 10,552'-10,557', 10,574'-10,581' and 10,586'-10,592' with 4-1/2" JSPF.
6. Run tubing with packer, displace MCA to formation.
7. Swab acid load.
8. Set packer at approximately 10,500' and begin water injection.

begin water injection.

Shell Oil Co.
Exhibit # 8
Case 2359

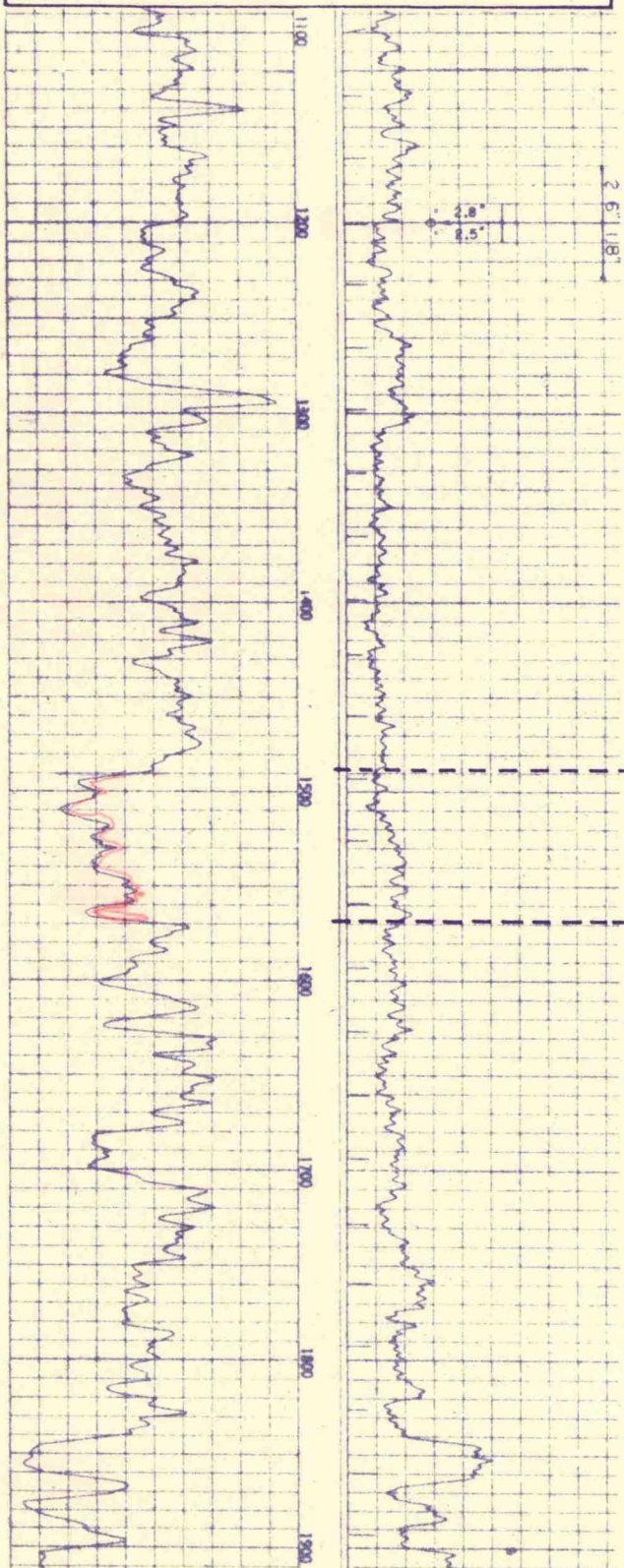
45000 Int. ... 3
 27000 ... 6
 27000 ... 9
 27000 ... 12

PURE OIL COMPANY
State "C" No. 1
Section 17-16-S-35-E

Elevation 4035'

TOWNSEND FIELD
LEA COUNTY, NEW MEXICO

Radioactive log of West
Offset Well to Humble
State AL-1 (Water Source
Well) illustrating Pro-
posed Water Source Zone.



*Santa Rosa should produce
ample water -
25% or greater porosity,
cleanness of sand
thickness of sand
will any produced wtr
be ~~too~~ unyielding.*

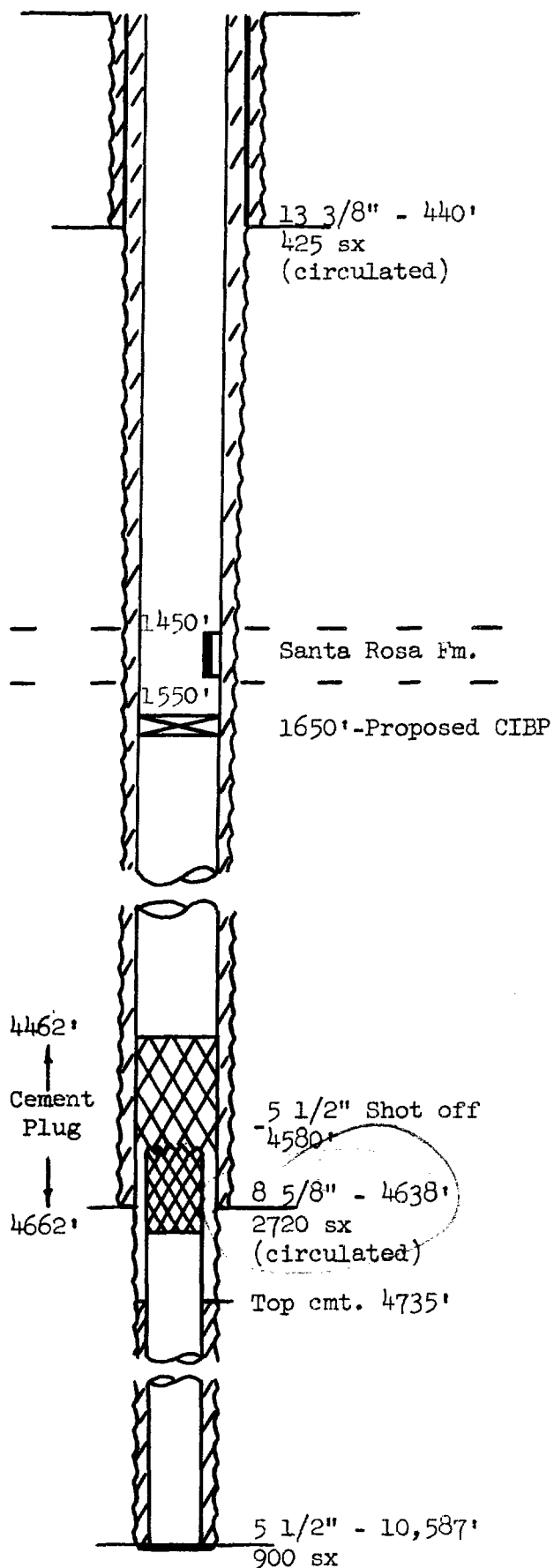
SANTA ROSA - Proposed
Water Source Zone

*is Santa Rosa wtr
compatible w/ Wolfcamp wtr
8600 ppm Cl in Sta Rosa
to south
Est 10,000 ppm in this.*

Shell Oil Co.
Exhibit #9
Case 2359

TOWNSEND FIELD
 LEA COUNTY, NEW MEXICO
 PILOT WATER FLOOD
 WATER SOURCE WELL
 HUMBLE STATE AL-1
 NW/4 NW/4 SECTION 16-16S-35E

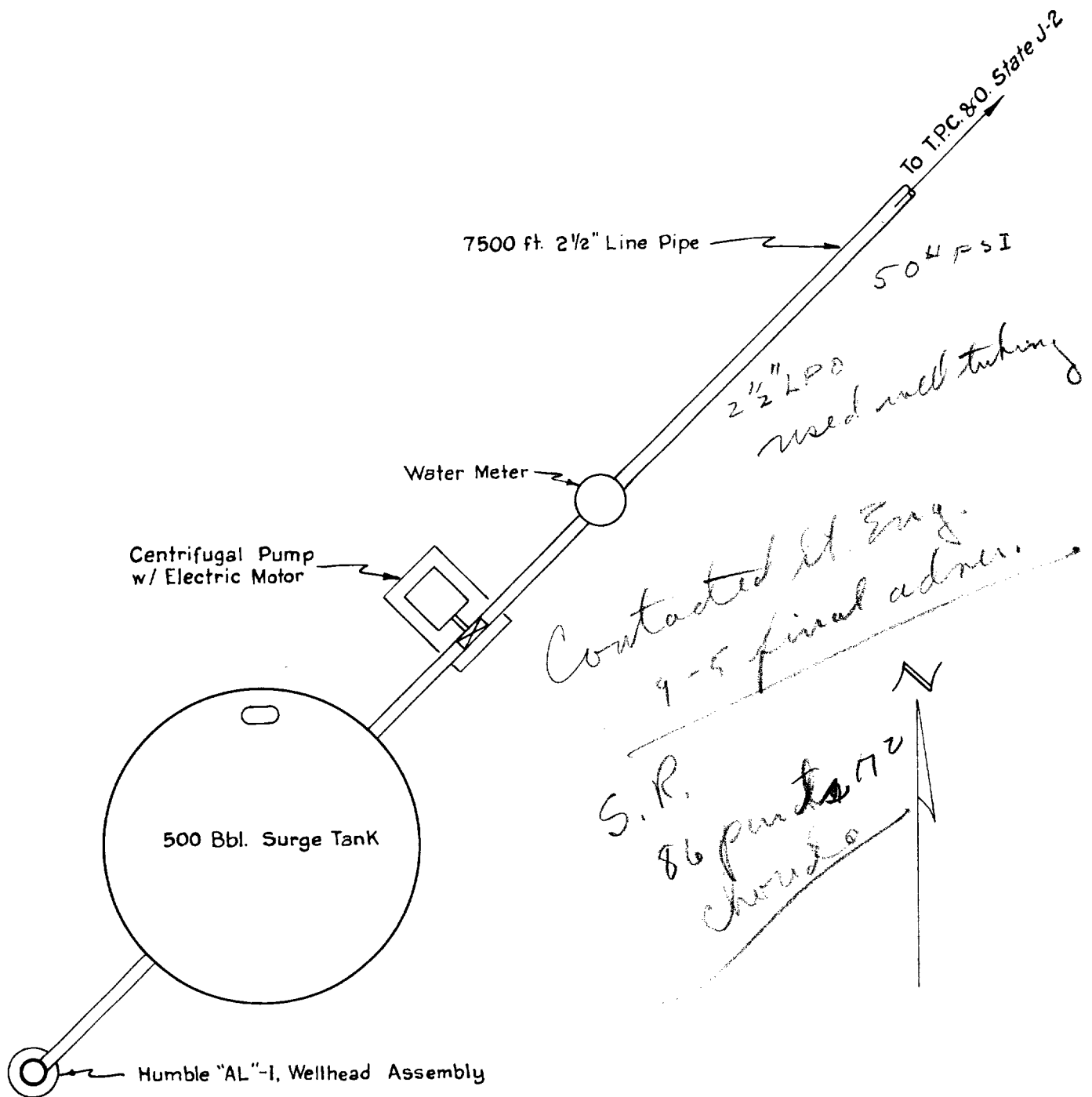
WORK PROGRAM



1. Remove surface cement plug and clean out to 2000'.
2. Run GR/N w/CCL from 2000' to surface.
3. Set CIBP 100' below interval to be perforated.
4. Perforate selected intervals between 1450' and 1550' (Santa Rosa sand) as determined from GR/N Survey.
5. Run 2" tubing with packer and swab test.
6. If necessary, treat via 2" tubing below packer with 20,000 gallons water containing 1# sand per gallon and fluid loss additive. Use 2000 HHP and maintain maximum injection rates. Do not exceed 2000 psi surface pressure.
7. Swab test.
8. If results satisfactory, pull tubing and packer, check for sand fill, and clean out if necessary.
9. Run 2" tubing with Reda pump and place on production.

Shell Oil Co.
 Exhibit #10
 Case 2359

TOWNSEND PILOT WATERFLOOD
Surface Facilities



Single Well Pilot Waterflood Test South Area
Townsend Wolfcamp Field
Lea County, New Mexico

7-17-61

Shell Oil Co.
Exhibit #11
Case 2359