Case #472

May 22, 1951

Tide Water Associated Oil Co.
Data for New Mexico Oil
Conservation Hearing

INTRODUCTION

Tide Water Associated Oil Company's State 'S' Lease is located in the North 1/2 of the North 1/2 of Section 15 and the Southeast 1/4 of the Southeast 1/4 of Section 10, Range 37 East, Township 21 South, Lea County, New Mexico. The Lease consists of approximately 200 acres.

At present, there are five producing wells on the lease. Two wells, #1 and #2, produce from the Drinkard Zone. Wells #3 and #4 are presently producing from the Ellenberger Zone. Well #5 is presently producing from the McKee Zone.

Well Number 4 is located 660' from both the North and South lines of the lease and 2080' East of the west line of Section 15, T21S, R37E.

Well Number 5 is located 660' from both the North and South lines of the lease and 990' East of the west line of Section 15, T-21S, R-37E.

HARE FIELD -McKEE FORMATION

Discovery Date and Well - 5-27-47, Amerada J. G. Hare #6, located in Section 33, T. 21S, R. 37E. Initial Potential 572 B[illegible] thru 1/2" Choke. T. D. 8165' P.B.T.D. 7893'

Producing Formation - Simpson (McKee) Ordovician System. Geological description: clear to frosted, medium to coarse semi-unconsolidated sand.

Type Reservoir Drive - The Structure of this reservoir is approximately the same as the Brunson (Ellenberger) being approximately 40C' higher. A solution gas type drive is present in the reservoir.

BRUNSON FIELD - ELLENBERGER FORMATION

Discovery Date and well: 9-14-45, M.G. Penrose Penrose #1, located in Section 9, T.22S, R.37E. Initial Potential 1680 BOPD.

Producing Formation - Ellenberger (Lime). Geological description: tan, medium crystalline, granular, sucrosic dolomite with numerous rounded coarse quarts grains.

Type Reservoir Drive: The average producing depth ranges between 7770' and 8130'. A solution gas type drive with a partial water drive on the North end is present in the reservoir.

ILLEGIBLE

Stratigraphy: As shown on the attached cross-section, both wells 4 and 5 contain complete Ellenberger sections. Well No. 5 contains a complete McKee section; however, approximately 100' of the upper McKee is missing in Well No. 4, this upper section having been eroded away and the Permian deposited directly on top of the eroded surface.

WELL COMPLETION DATA
State 'S' #4

Location: 660' South of North line and 2080' East of west line of N/2 of N/2 of Sec. 15, T 21S, R 37E, Lea County, New Mexico
Total Depth 7896
Elevation 3459 D. F.
Casing

Surface	13-3/8" O. D.	set @	295'	w/300 sx.
Intermediate	8-5/8" O. D.	set @	2999	w/1700 sx.
Oil	5-1/2" O. D.	set @	7895	w/500 sx.

Acidized with 2000 gal. 15% HCL on 1-19-51 thru perfs 7800 to 7825 prior to acid treatment well would not flow; after treatment well flowed.

Perforations 7800 - 7825

Initial Potential (Ellenberger)
Date: 1-24-51
Test: Flowed 96.37 Bbls. Oil in 4 hrs. 0min thru 1/4" Choke, 2-3/8" Tbg. set @ 7870' Tbg. pressure 580#, Csg. Press. 0 GOR 1151/1
Gravity of crude 42° API
Calculate Daily Potential 578 BOPD

Drill Stem Tests data as shown in the attached table indicated that the Mckee sand was capable of flowing 50 BOPH.

PRODUCTIVITY INDEX & DATA
State S# 4

Ellenberger Zone
Date 2-22-51 thru 2-24-51
Perforated Zone 7800-7805
Datum 7759 (-4300)

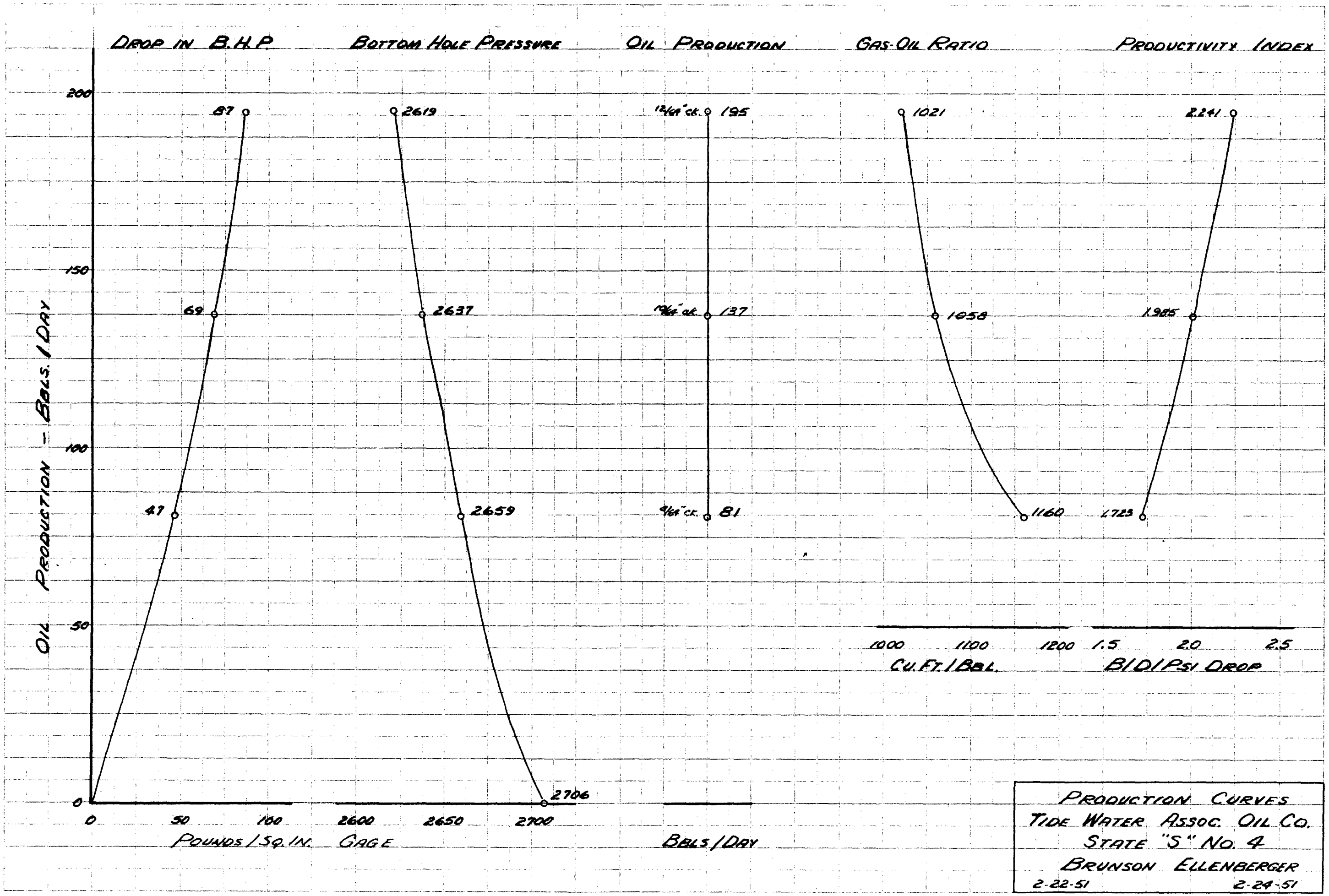
Static Build Up

Hours Shut In	Pressure Datum	Pressure Change
49:20	2699	Initial Test
51:20	2706	8# gain

Flow Tests

Size Choke	Hours Flowing	Datum Pressure Initial	Datum Pressure Final	Oil B/D	Gas-Oil Ratio	PI B/D/psi
12/64"	12:20	2706	2619	195	1021	2.241
10/64"	10:10	2706	2637	137	1058	1.985
8/64"	8:20	2706	2659	81	1160	1.723

McKee Zone
Drill stem test data as shown by the included tabulation indicated the McKee Zone flowed 50 BOPH.



Production Curves
Tide Water Assoc. Oil Co.
State "S" No. 4
Brunson Ellenberger
2-22-51 2-24-51

Ex Case 260

State "S" #4

Drill Stem Tests

DST #	#1	#2	#3	#4
Formation Tested	McKee	Connell	Ellenburger	Ellenburger
Total Depth	7520	7646	7896	7896
Packer Set At	7398	7556	7739	in 5-1/2 csg. @ perf 7706-32672
Total No. Ft. Tested	22'	90	157	
Size Hole	6-3/4	No	6-3/4	
Size Drill Pipe	3-1/2 Mod	Test	3-1/2	2 Eue
Choke Size:				
(1) Top	1"		1"	1"
(2) Bottom	5/8"		5/8"	5/8"
Blanket	None		None	None
Total Time tool Open	1 hr-18 min		1 hr-18 min	1 hr.
Gas to Surface (Time)	3 min.		5 min.	Slight Blow
Mud " " "	11-1/2 min.		40 min	
Oil " " "	12-1/2 min		48 min	
Flowing Data				Did not flow
(1) Total Time Flowed	1 hr-6 min		30 min.	
(2) Rate of Flow	50 BPH		36.6 BPH	
(3) % Oil	100		100	
(4) % Water				
(5) Flowing Surf. Press.	7			
(6) Total Bbls. Flowed	55		28.29	
Recovered (When Pulled)				
(1) Oil	180'		900'	
(2) Water				
(3) Mud				730' Drlg.
Flowing (Final) BHP	1366#		1160	350#
Length of Time Tool Closed	15 min		15 min	15 min.
Static BHP	2730		2845	
Initial Hydrostatic Mud Wt.	3995		3550	3455
Final Hydrostatic Mud Wt.	3995		3405	3455
Mud Wt, #1 gal.	9.8#		9.2	9.0
Date Tested	1-4-51	1-6-51	1-12-51	1-16-51

Case # 275
TWA Ex #1

WELL COMPLETION DATA
State "S" #5

Location 660' South of North line and 990' East of West line of Section 15, T 21S, R 37E, Lea County, New Mexico.

Total Depth 8148

P.B.T.D. 7936

Elevation 3458 D. F.

Casing

Surface	13-3/8" O. D.	set @	294	w/300 sx.
Intermediate	8-5/8" O. D.	set @	2974	w/2000sx.
Oil	5-1/2" O. D.	set @	8147	w/500 sx.

Acidized

Ellenberger 7968 to 92 and 8062 to 8120 thru perfs with 2000 gal low surface tension acid on 4-11-51
7968 to 8020 and 8062 to 8120 thru perfs with 3000 gal. acid on 4-13-51
7968 to 8020 and 8062 to 8120 thru perfs with 10,000 gal. 15% HCl on 4-16-51

McKee 7610 to 7660 thru perfs with 500 gal. mud acid on 4-21-51

Perforations

Ellenberger	7968 to 7992 - 4 jet shots/ft	
	8062 to 8120 - 4 jet shots/ft	
	7968 to 8020 - 4 bullet shots/ft	
McKee	7610-7660	4 shots/ft
	7682-7710	4 bullet shots/ft

Initial Potentials

Ellenberger

Date: 4-17-51
Test: Flowed 353 Bbls. Oil in 24 Hrs. thru 1/2" choke, 2-3/8 Tbg. shake out last 3 Hrs. 2% water Tbg. Pressure 165# Csg. Pressure 0 GOR 740/1

McKee

Date: 4-23-51
Test: Flowed 308.37 Bbls. Oil in 24 Hrs. 0min thru 1/4" choke, 2-3/8" Lbg. set @ 7709
Tbg. Pressure 590# Csg. Press. 0
GOR 1097/1
Gravity of Crude 44.6° API

The Ellenberger Zone has been plugged off and the well is presently producing from the McKee.

Case No 275
Tex Ex #2

PRODUCTIVITY INDEX DATA
State "S" #5

Ellenberger Zone
Date: 4-17-51 thru 4-19-51
Perforated Zone: 7968 to 8020 and 8062 to 8120
Datum 7758 (-4300)

Static Build-Up

Hours Shut In	Pressure @ Datum	Pressure Change
0:25	1973	Initial Test
1:25	2088	115# gain
2:25	2164	76# gain
3:25	2205	41# gain
4:25	2226	21# gain
5:25	2295	19# gain
6:25	2262	17# gain
Estimated Maximum	Static Pressure	2386#

Flow Tests

Size Choke	Hours Flowing	Datum Pressure Initial	Datum Pressure Final	Oil B/D	Gas-Oil Ratio	PI B/D/psi
1/2"	24	2386 est.	1073	346	751	0.2635
3/8"	5:11	2386 est.	1388	260	835	0.2605
1/4"	4	2386 est.	1701	187	690	0.2730

This PI test was not conducted in the conventional manner. Static build-up tests are usually run prior to flow tests and after a well has been shut in some 48 to 72 hours. Due to lack of time in this particular case, the flow tests were run first after the well had been flowing for several days on 1/2" choke. The well was then shut in and a 6-hour static build up test was run. The maximum static pressure used in the PI calculations is an estimated figure.

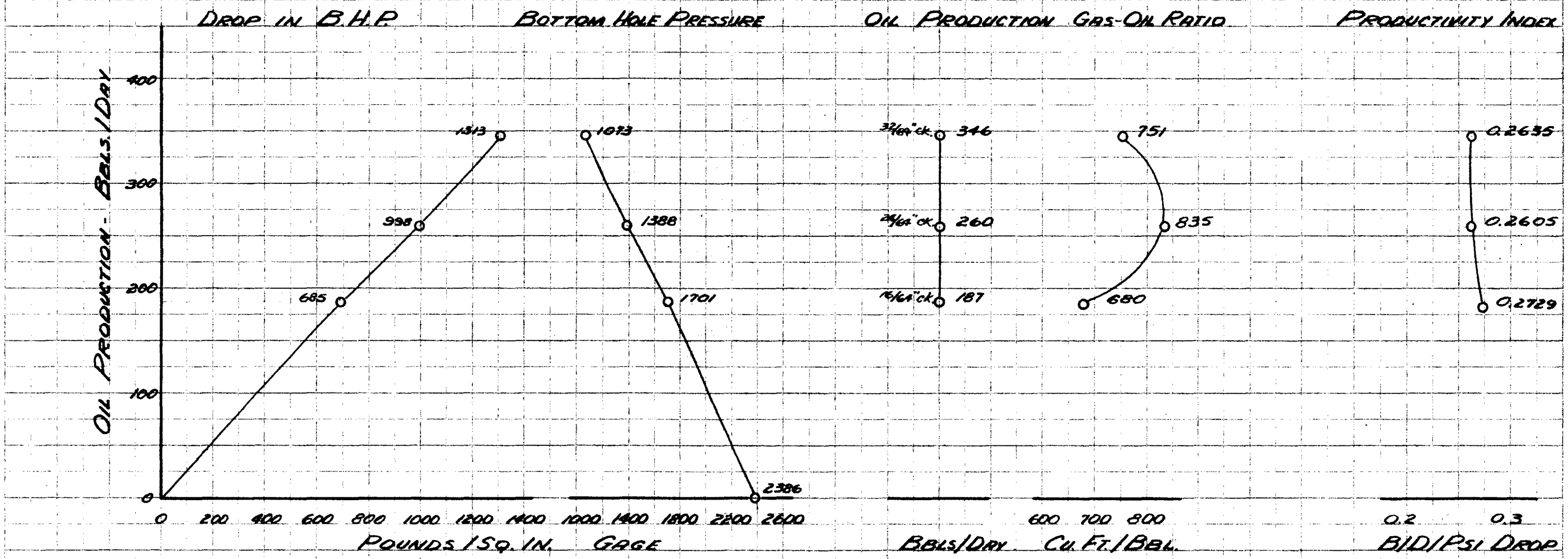
McKee Zone
Date: 4-27-51 thru 4-30-51
Perf. Zone: 7610-7660 and 7682 to 7710
Datum 7758 (-4300)

Static Build-Up

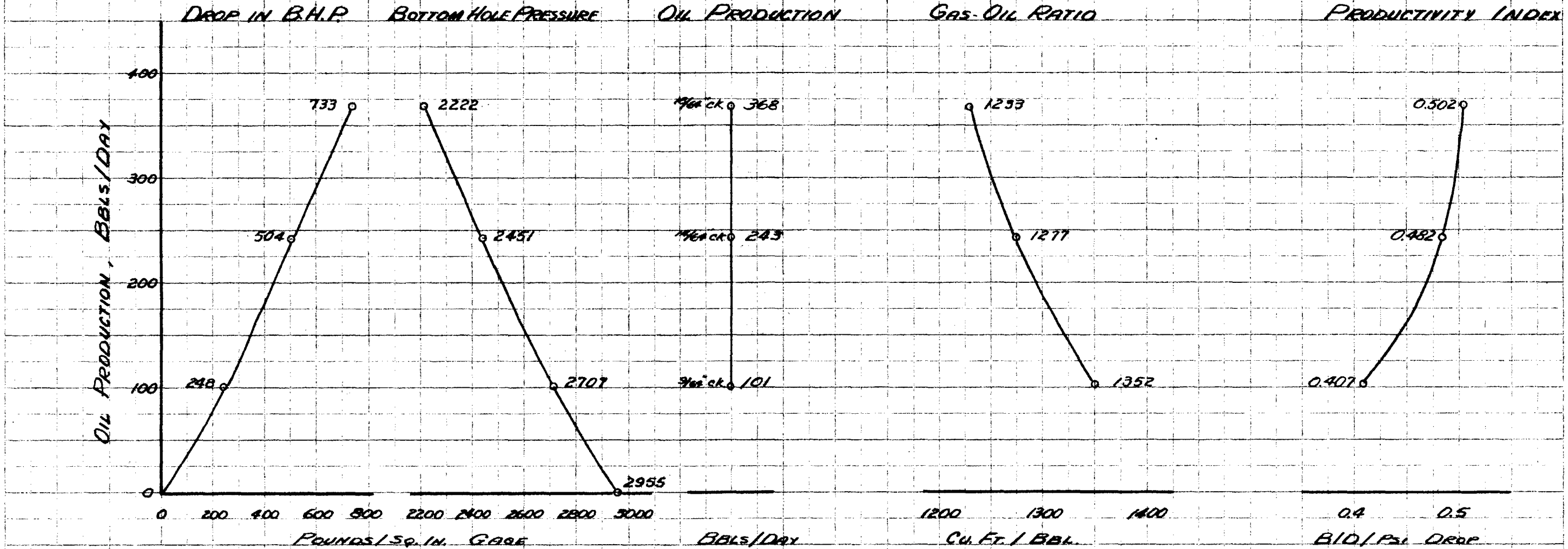
Hours Shut In	Pressure @ Datum	Pressure Change
68:42	2950	Initial Test
74:45	2955	5# gain

Flow Tests

Size Choke	Hours Flowing	Datum Pressure Initial	Datum Pressure Final	Oil B/D	Gas-Oil Ratio	PI B/D/psi
9/64"	18:15	2955	2707	101	1352	0.407
14/64"	20:45	2955	2451	243	1277	0.482
18/64"	17:22	2955	2222	368	1233	0.502



Production Curves
Tide Water Assoc. Oil Co.
State "S" No. 5
Brunson Ellenberger
4-18-51 4-19-51



PRODUCTION CURVES
TIDE WATER ASSOC. OIL
STATE "S" No. 5
HARE FIELD - McKEE FORM
4-27-51 4-30-51

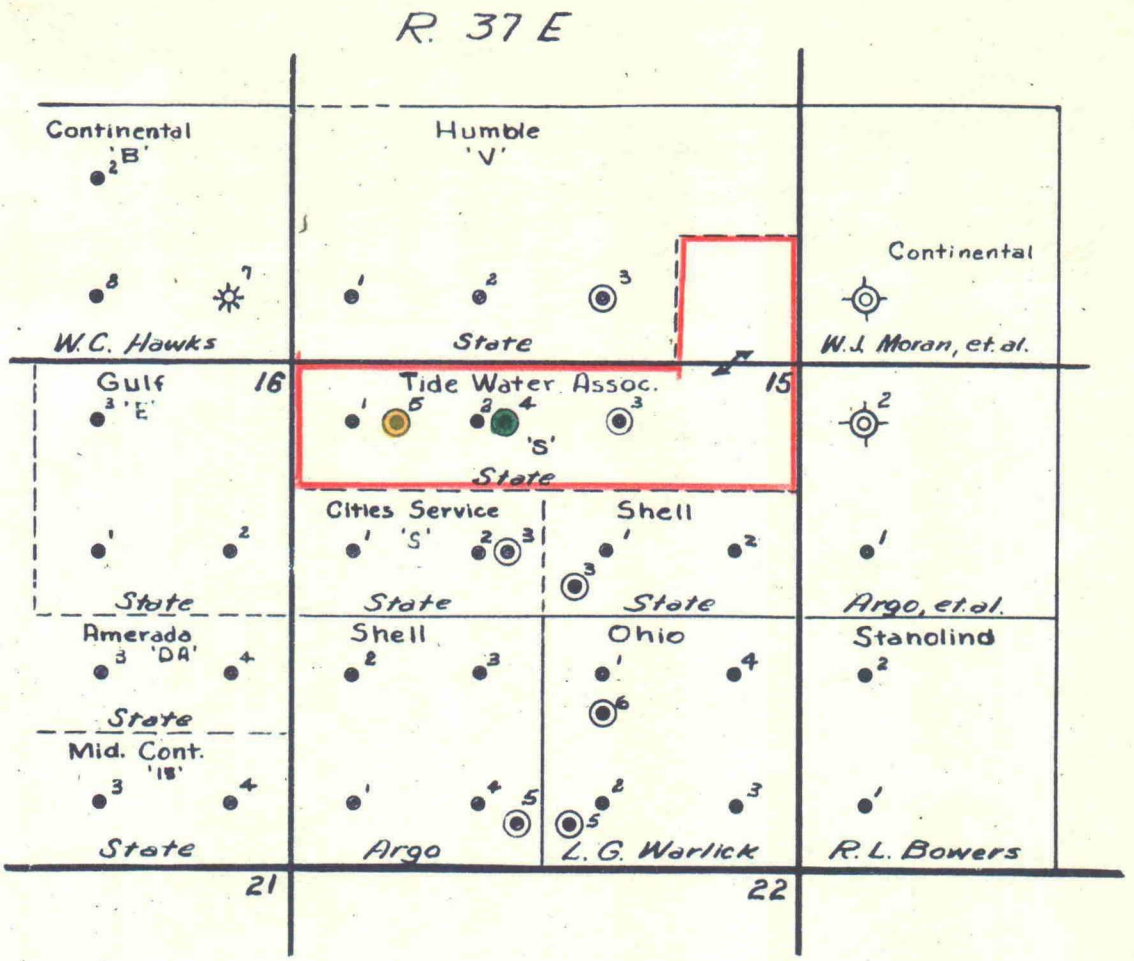
Case # 275
TWA Ex #5

State 'S' #5

Drill Stem Tests

DST #		#1	#2	#3	#4	#5	#6
Formation Tested		McKee	McKee	McKee	Connell	Ellenberger	Ellenberger
Total Depth		7700	7700	7800	7880	8148	8148
Packer Set At		7579	7606	7704	7844	8005	7960
Total No. Ft. Tested		121	94	96'	36'	143'	188'
Size Hole			6-3/4"	6-3/4"	6-3/4"	6-3/4"	6-3/4"
Size Drill Pipe		No	3-1/2 IF	3-1/2 IF	3-1/2 IF	3-1/2 IF	3-1/2 IF
Choke Size		Test					
(1) Top			1	1"	1"	1"	1"
(2) Bottom			1/2"	1/2"	1/2"	1/2"	1/2"
Blanket			None	None	None	None	None
Total Time Tool Open			1 hr. 13 min.	4 hrs.	1 hr.	3 hr.	5 hr.
Gas to Surface (Time)			5 min.	3 min.	light blow	6 min.	6 min.
Mud " " "							
Oil " " "			13 min.	13 min.			
Flowing Data							
(1) Total Time Flowed			1 hr.	4 hr.	Did		Gas Headed
(2) Rate of Flow			65 BPH	21B H	Not		and Flowed
(3) % Oil			100 %	100 %	Flow		Approx. 3 B.
(4) % Water			0	0			Oil
(5) Flowing Surface Press.							
(6) Total Bbls. Flowed			65	84			3
Recovered (when pulled)							
(1) Oil						660'	30 Bbls.
(2) Water							
(3) Mud					35'		
Flowing (Final) B.H.P.			1761	926	28	1141	665
Length of time tool closed			15 min.	15 min		15 min	15 min
Static BHP			2682	2205		1432	1169
Initial Hydrostatic Mud Wt.			3640	3681	3842	3812	3842
Final Hydrostatic Mud Wt.			3640	3681	3720	3789	3821
Mud Wt, #1 gal.			9.1	9.4	9.2	9.0	9.3
Date Tested	3-25-51		3-26-51	3-28-51	3-30-51	4-4-51	4-5-51

Case # 275
TWA Ex. #6



◎ Ellenberger Well

• Drinkard Well

◎ Ellenburger Proved Productive
Completed in McKee

◎ McKee Proved Productive
Completed in Ellenberger

PLAT SHOWING TIDE WATER ASSOCIATED OIL CO.
STATE "S" LEASE & VICINITY, LEA CO, N.M.

Scale: 1"=2000' Date: 5-1-51

TIDE WATER ASSOCIATED OIL COMPANY

MID-CONTINENT DIVISION
MELLIE ESPERSON BLDG. POST OFFICE BOX 1404
HOUSTON 1, TEXAS

April 20th, 1951

In re: Case No. 260

New Mexico Oil Conservation Commission,
P.O. Box 871,
Santa Fe, New Mexico

Attention Mr. R. R. Spurrier, Secretary and Director.

Gentlemen:

Pursuant to authority granted by Order No. R-83, Case No. 260, we are enclosing herewith three copies of Tide Water Associated Oil Company's amended application in which we have requested permission to produce an 80-acre allowable from State "S" No. 4, completed in the Ellenberger and an 80-acre allowable for State "S" No. 5 which has been proven productive in the McKee sand and will be completed in that zone. Well No. 5 was also proven to be productive in the Ellenberger.

An alternative request is made to dually complete the two wells if the Commission is not disposed to grant the 80 acre allowables.

Yours very truly,

TIDE WATER ASSOCIATED OIL COMPANY,

By J B Holloway