

EARLOUGHER ENGINEERING

PETROLEUM CONSULTANTS - CORE ANALYSES

3316 EAST 21ST STREET

TULSA, OKLAHOMA

August 5, 1964

Western Petroleum Company, Inc.  
925 Patton Road  
Great Bend, Kansas

Attention - Mr. John H. Volosin

Re - Core Analysis

Dalton "C" Well No. 1A

Sec 11, Twp 24S, Rge 11E

Greenwood County, Kansas


According to  
the logs,  
this well is in  
12E

Gentlemen:

Attached are results of analysis, together with profile and summary, covering core received from your above well.

Yours very truly

EARLOUGHER ENGINEERING

  
R. C. Earlougher, Engineer

JMR bw  
Encl - 5

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CORE SUMMARY

Company Western Petroleum Company, Inc. Lease Dalton "C" Well No. 1A

Location C SW SE NE

Section 11 Twp. 24S Rge. 11E County Greenwood State Kansas

Formation Cored Mississippi Lime Type Core 2-1/2 inch Diamond

Date Cored 7-30-64 Date Shot \_\_\_\_\_ Coring Fluid Water Base Mud

Depths:	Top of core received, brown limestone	1746.0 Feet
	Bottom of core received, dense grey limestone	1778.0 "
	Net feet of possible oil-water zone	3.6 "
	Net feet of possible water zone	18.5 "
	Total feet cored	32.0 "
	Feet analyzed	24.0 "

Shot Record:

<u>Depth, Feet</u>	<u>Shell</u>	<u>Quartz</u>	<u>Quartz</u>
<u>From</u> <u>To</u>	<u>Diameter</u>	<u>Per Foot</u>	<u>Total</u>
<u>Feet</u>			

Remarks: Core of the Mississippi Lime section from 1746 to 1778 feet was shipped to our laboratory sealed in metal tubes. No core was received from the interval 1749 to 1752 and from 1758 to 1763 feet. One sample was analyzed from each foot of core received.

Results of analyses are summarized in three sections based on variance in average core oil saturation. Section one represents 3.6 net feet of possible oil and water productive

Mississippi Lime from 1746 to 1754.5 feet. Section two represents 9.4 net feet of probable water-productive limestone with the possibility of a little oil from 1754.5 to 1768.9 feet. Section three represents 9.1 net feet of dense grey probable water-productive limestone analyzed from 1768.9 to 1778 feet.

PERMEABILITY

Average permeability of section one is 17 millidarcys with values ranging from 2.8 to 30 millidarcys.

Sections two and three have an average permeability of 3.1 and 2.1 millidarcys, respectively.

POROSITY

Average porosity of section one is 17.2 per cent with values ranging from 11.5 to 22.3 per cent. Porosity ranges from small vugular type to

triphylitic chat.

Sections two and three have an average porosity of 16.4 and 12.8 per cent, respectively. Some small vugular porosity development is present in sections one and two.

PER CENT SATURATION

Section one has an average core oil saturation of 15 per cent and average core water saturation of 53 per cent.

These values are indicative of high connate water saturation, in our opinion.

Section two has an average oil saturation of 6 per cent and average core water saturation of 60 per cent. The oil saturation shown in section two is erratic and ranges from zero to 17 per cent. It is believed that this interval is principally water-productive.

Section three has an average core oil saturation of 2 per cent and average core water saturation of 81 per cent indicating a water productive zone of low productive capacity.

LABORATORY WATER FLOODING TESTS

Laboratory water flooding tests yielded an average oil recovery of 19 barrels per acre-foot from two samples in section one. Average residual oil saturation was 13 per cent and permeability to water was quite low.

Flood samples from sections two and three showed no measurable oil recovery and indicated residual oil saturations of 6.6 and 1.1 per cent, respectively. These tests indicate higher permeability to water in section two than in either section one or section three. However, permeability to water was low throughout the entire section analyzed.

CONCLUSIONS

1. These analyses indicate 3.6 net feet of possible oil and water-productive Mississippi Lime from 1746 to 1754.5 feet.
2. This 3.6 net feet of limestone has an average permeability of 17 millidarcys and average porosity of 17.2 per cent. The average core oil saturation is 15 per cent and average core water saturation 53 per cent. Laboratory water flooding tests yielded very low oil recovery.
3. The bottom 18.5 feet of Mississippi Lime analyzed from 1754.5 to 1778 feet has very

low average oil saturation and high core water saturation and in our opinion is principally water-productive with low capacity.

4. Insofar as these analyses are indicative, it is our opinion that no significant oil recovery should be expected by water flooding from the area of which this core is representative.

Respectfully submitted

EARLOUGHER ENGINEERING



J. M. Robinson, Engineer

IMR bw

EARLOUCHER ENGINEERING  
SUMMARY OF CORE ANALYSIS DATA

Western Petroleum Company, Inc.

LEASE Dalton "C"

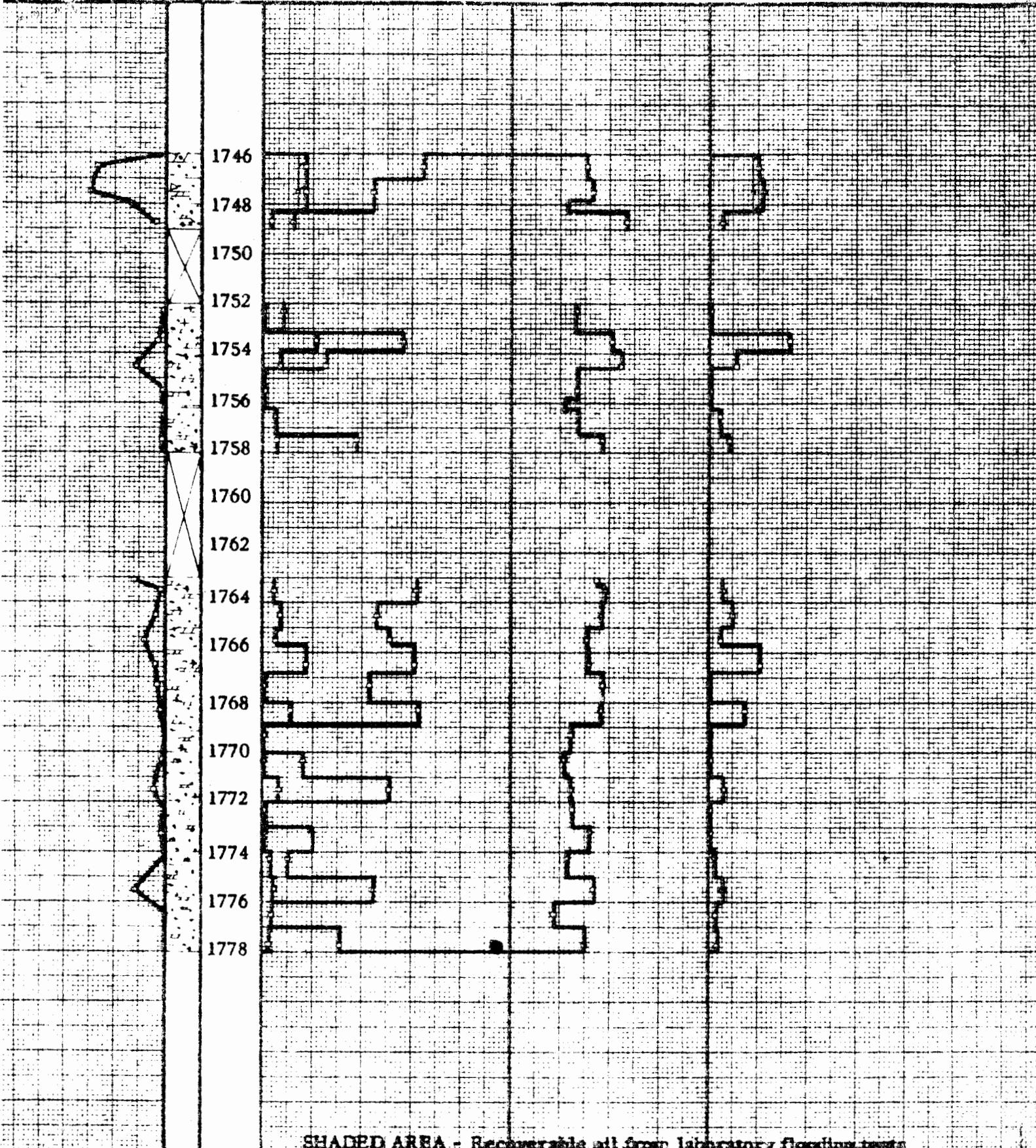
WELL NO 1A

Sec.	Formation	Depth, Ft.		Net Ft. of Sand	Avg. Per.	Avg. Core Saturation		Core Oil Content		Permeability		Fluid Per Reservoir			Oil Recovery Est./Acres		
		From	To			Oil	Water	B/A Ft.	Total B/Ac.	AVP Md	Capacity Ft. x Md	Saturation	Water	B/A Ft.	B/Ac.	DWT.	Fluid Per
	MISSISSIPPI LIME																
1	Oil-Water	1746.0	1754.5	3.6	17.2	15.	53	200	720	17.	62	13.	73	167	600	120	70
2	Water	1754.5	1768.9	9.4	16.4	6.0	60	76	720	3.1	29	6.6	73	84	790	-0-	-0-
3	Water	1768.9	1778.0	9.1	12.8	2.2	81	22	200	2.1	19	1.1	82	11	100	--	-0-
2&3	Water	1754.5	1778.0	18.5	14.6	4.4	70	50	920	2.6	48	4.2	77	48	890	-0-	-0-



Sample No.	Depth	Porosity	Perm. Approx.	Before Flooding 1/			Max. Press. Pd.	Water Through C.C.	Time Min.	Flood Per Backed			Flood Per Oil Recovery Bl./A. Ft.
				Oil Sat.	Water Sat.	Oil Content Bl./A. Ft.				Oil Sat.	Water Sat.	Oil Content Bl./A. Ft.	
P- 2	1747.5	16.6	30.	15.	--	190	70	300	14.	67	180	12	
F- 4	1752.3	13.0	0.1	7.7	--	78	70	360	7.7	92	78	+	
F- 6	1754.5	22.3	12.	13.	--	220	70	300	11.	78	190	26	
F- 8	1756.5	13.7	0.1	5.3	--	57	70	360	5.3	95	57	-0-	
F-10	1763.5	19.4	1.4	4.0	--	60	70	360	4.0	84	60	-0-	
F-12	1765.5	15.6	7.9	16.	--	190	70	360	16.	65	190	-0-	
F-14	1767.3	18.7	2.1	1.1	--	16	70	360	1.1	45	16	-0-	
F-16	1769.3	12.1	-0-	+	--	+	70	360	+	100	+	-0-	
F-18	1771.5	12.1	4.1	5.5	--	52	70	360	5.5	78	52	-0-	
F-20	1773.2	16.1	0.4	+	--	+	70	360	+	81	+	-0-	
F-22	1775.5	16.9	12.	+	--	+	70	360	+	60	+	-0-	
F-24	1777.7	14.9	-0-	+	--	+	70	360	+	92	+	-0-	

DW 1/ Unless otherwise noted, oil content and saturation before flooding equals flood pot oil recovery plus flood pot residual.



SHADED AREA - Recoverable oil from laboratory flooding tests.

Depth	Permeability		Flood Pot Residuals			
	Avg. Mois.	Capacity Ft. x Md.	Saturation Oil	Water	Oil Content Bbl. Ac.	Bbl. Ac.
1746	17.	62	13.	73	167	600
1750	3.1	29	6.6	73	84	790
1754	2.1	19	1.1	82	11	100

COMPANY WESTERN PETROLEUM, INC.  
 LEASE Dalton "C" WELL NO 1A  
 LOCATION C SW SE NE  
 SEC 11 T 24S R 11E COUNTY Greenwood  
 STATE Kansas DATE 8-5-61  
 EARLOUGHER ENGINEERING TULSA OKLAHOMA

WESTERN PETROLEUM CO., INC.

COMPLETION AND WORKOVER REPORT

Completion  
Workover No. Completion

Well Dalton "C" #1-A

Date August 10, 1964

Date	Time	Detail Work Done
8/4/64		White and Ellis moved in.
8/5/64		Rigged up. Jetwell ran Gamma-Ray & Neutron Collar finder log from 1798' to 1300'. No reset to the open hole log. Jetwell perforated 1752', 1756', 1764' (1 hole per foot hole size .38") with 4" casing gun.
	4:00 PM	Swabbed hole to bottom. No shows.
		Dowell acidized perforations 1752', 1756', 1764' down 4-1/2" casing w/250 gallons mud acid. Maximum pressure 400#. Slow break to 30#. Finished at 15#. On vacuum immediately. Overall treating rate .16 BPM. Fluid 600' down hole. Swabbed hole to bottom. 16 barrels short of seed. Good show of gas; no oil shows.
	8:30 PM	3 hour test (4 pulls per hour) the last 2 hours swabbing 5 BTFH, 8 barrels over seed. Water gravity 1.040. Good show of gas, no oil shows
	11:00 PM	Dowell reacidized perforations down 4-1/2" casing selectively with 3000 gallons of retarded acid 5. Maximum pressure 2000#, 6 BPM. Broke to 1400#, slow break to 600#. Finished at 700#. Immediate pressure drop 100# (600# drop); 1 minute 80# (680# drop). On vacuum in 1-1/2 minutes. Overall treating rate 4 BPM. Jetwell perforated 1750-58' (14 holes), 1763', 1766' (3 holes) with strip gun. Let acid set 2 hours after acid job.
8/6/64	1:00 AM	1000' standing fluid in the hole.
	2:00 AM	Swabbed hole to bottom, 76 barrels short of seed. Good show of gas, no oil shows, <u>100% water</u> .
	8:00 AM	6 hour test (4 pulls per hour), swabbing off bottom 8.5 BTFH, <u>100% water</u> . Good show of gas. Water gravity 1.042, pH 6.5; 22 barrels short of seed.
8/7/64	8:00 AM	24 hour test (4 pulls per hour), last 16 hours stable at 6 BTFH. Good show of gas, <u>100% water</u> . Water gravity 1.036, pH 6.5; 129 barrels over seed. Tore the unit down.

3-27-03

Alan Byrnes confirmed that this is a workover so the "-A" was removed from the well name and an owwo extension was added to the API. MCM