

OILFIELD RESEARCH LABORATORIES

536 NORTH HIGHLAND - CHANUTE, KANSAS 66720 - PHONE (316) 431-2650

August 23, 1979

Kansas Crude Company
820 Meadowbrook West
Iola, Kansas 66749

Gentlemen:

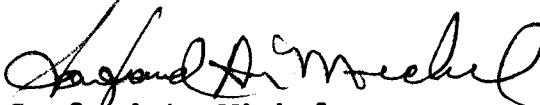
Enclosed herewith are the results of tests run on the rotary core taken from the Cummings "B" Lease, Well No. 20, Woodson County, Kansas, and submitted to our laboratory on August 22, 1979.

This core was sampled and the samples sealed in plastic bags by a representative of the client.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES



Sanford A. Michel
Chemist

SAM:bl
5 c to Iola, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company Kansas Crude Company Lease Cummings "B" Well No. 20

Location NE $\frac{1}{4}$

Section 18 Twp. 25S Rge. 16E County Woodson State Kansas

Name of Sand	Squirrel
Top of Core	990.0
Bottom of Core	1000.0
Top of Sand	990.0
Bottom of Sand	1000.0
Total Feet of Permeable Sand	8.7
Total Feet of Floodable Sand	

Distribution of Permeable Sand:
Permeability Range
Millidarcys

Feet

Cum. Ft.

0 - 10
10 - 20
20 - 80
80 - 110

2.7
0.7
1.8
3.5

2.7
3.4
5.2
8.7

Average Permeability Millidarcys	49.9
Average Percent Porosity	18.7
Average Percent Oil Saturation	57.7
Average Percent Water Saturation	17.6
Average Oil Content, Bbls./A. Ft.	840.
Total Oil Content, Bbls./Acre	7,310.
Average Percent Oil Recovery by Laboratory Flooding Tests	
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	
Total Oil Recovery by Laboratory Flooding Tests, Bbls./Acre	
Total Calculated Oil Recovery, Bbls./Acre	
Packer Setting, Feet	
Viscosity, Centipoises @	
A. P. I. Gravity, degrees @ 60 °F	
Elevation, Feet	

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-LOG-

Company Kansas Crude Company Lease Cummings "B" Well No. 20

<u>Depth Interval,</u> <u>Feet</u>	<u>Description</u>
990.0 - 992.0	Dark brown slightly shaly sandstone.
992.0 - 992.7	Dark brown very shaly sandstone.
992.7 - 993.0	Gray shale.
993.0 - 993.7	Dark brown slightly shaly sandstone.
993.7 - 994.0	Dark gray shale.
994.0 - 998.0	Dark brown slightly carbonaceous sandstone.
998.0 - 998.3	Dark gray sandy shale.
998.3 - 998.8	Dark brown sandstone.
998.8 - 999.2	Gray sandy shale.
999.2 - 1000.0	Dark brown carbonaceous sandstone.

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RESULTS OF SATURATION & PERMEABILITY TESTS

TABLE 1-B

Company Kansas Crude Company Lease Cummings "B" Well No. 20

Sample No.	Depth, Feet	Effective Porosity Percent	Percent Saturation		Oil Content Bbls. / A Ft.	Perm., Mill.	Feet of Sand		Total Oil Content	Perm. Capacity Ft. X md.
			Oil	Water			Ft.	Cum. Ft.		
1	990.5	16.4	52	19	662	6.9	1.0	1.0	662	6.90
2	991.5	17.1	59	17	783	9.9	1.0	2.0	783	9.90
3	992.5	18.4	50	25	714	1.8	0.7	2.7	500	1.26
4	993.5	18.8	40	25	593	19.	0.7	3.4	415	13.30
5	994.5	18.3	61	18	866	90.	1.0	4.4	866	90.00
6	995.5	19.5	53	16	802	108.	1.0	5.4	802	108.00
7	996.5	21.2	56	11	921	24.	1.0	6.4	921	24.00
8	997.4	17.8	69	18	953	94.	1.0	7.4	953	91.00
9	998.4	21.2	63	14	1,036	83.	0.5	7.9	518	41.50
10	999.5	19.9	72	15	1,112	60.	0.8	8.7	890	48.00

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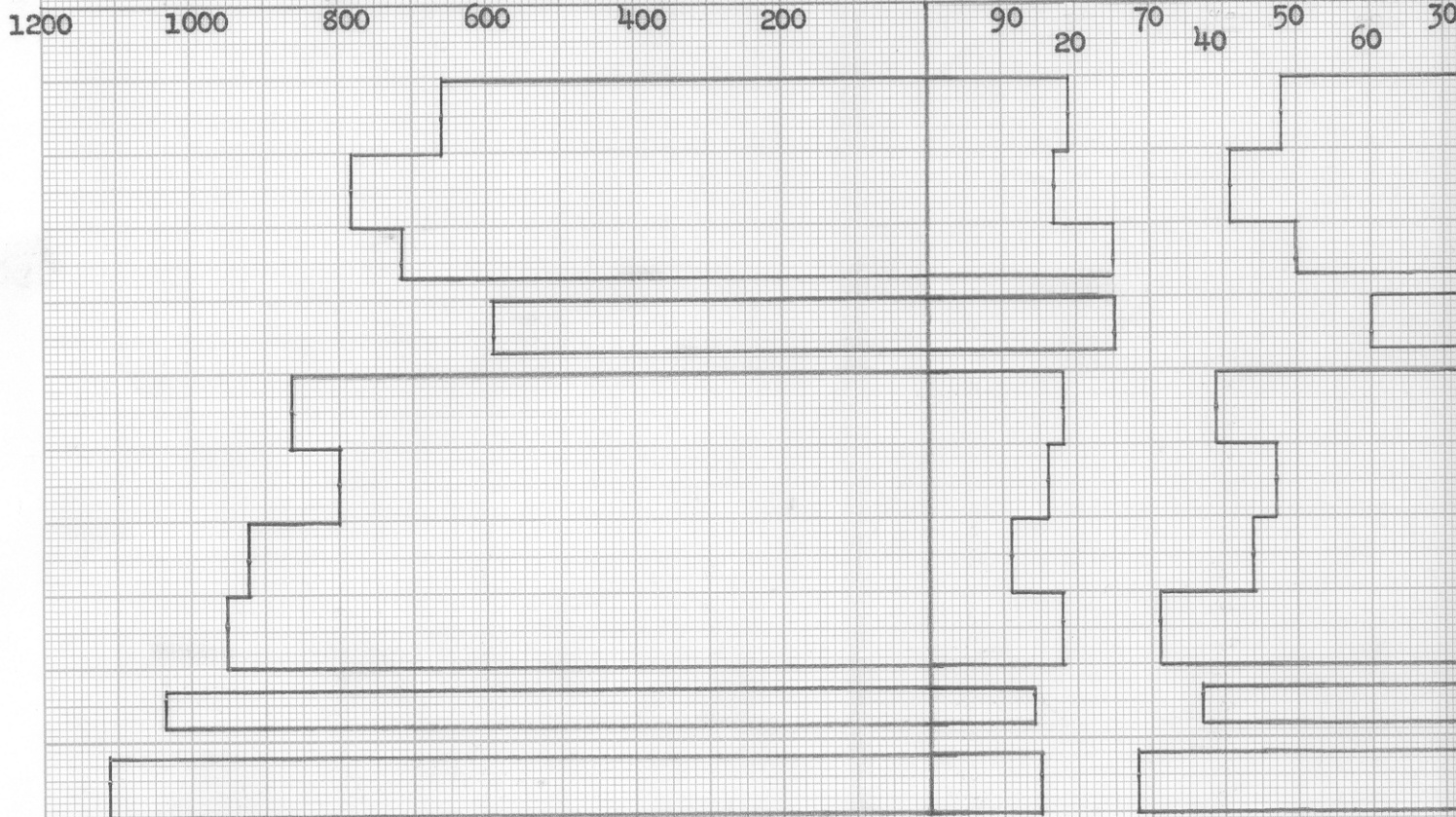
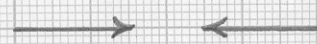
SUMMARY OF PERMEABILITY & SATURATION TESTS

TABLE III

Company	Kansas Crude Company		Lease	Cummings "B"		Well No.	20
Depth Interval, Feet	Depth Interval, Feet		Feet of Core Analyzed	Average Permeability, Millidarcys	Permeability Capacity Ft. x Md.		
990.0 - 993.7	990.0 - 993.7		3.4	9.2	31.36		
994.0 - 1000.0	994.0 - 1000.0		5.3	75.9	402.50		
990.0 - 1000.0	990.0 - 1000.0		8.7	49.9	433.86		
Depth Interval, Feet	Feet of Core Analyzed	Average Percent Porosity	Average Percent Oil Saturation	Average Percent Water Saturation	Average Oil Content Bbl./A. Ft.	Total Oil Content Bbls./Acre	
990.0 - 993.7	3.4	17.5	51.2	20.9	694	2,360	
994.0 - 1000.0	5.3	19.5	61.9	15.5	934	4,950	
990.0 - 1000.0	8.7	18.7	57.7	17.6	840	7,310	

OIL CONTENT,
BBL./A. FT.

WATER SAT.,
PERCENT



KEY:



SANDSTONE



CARBONACEOUS SANDSTONE

DEPTH INTERVAL,
FEET

FEET OF COR
ANALYZED

990.0 - 993.7

3.4

994.0 - 1000.0

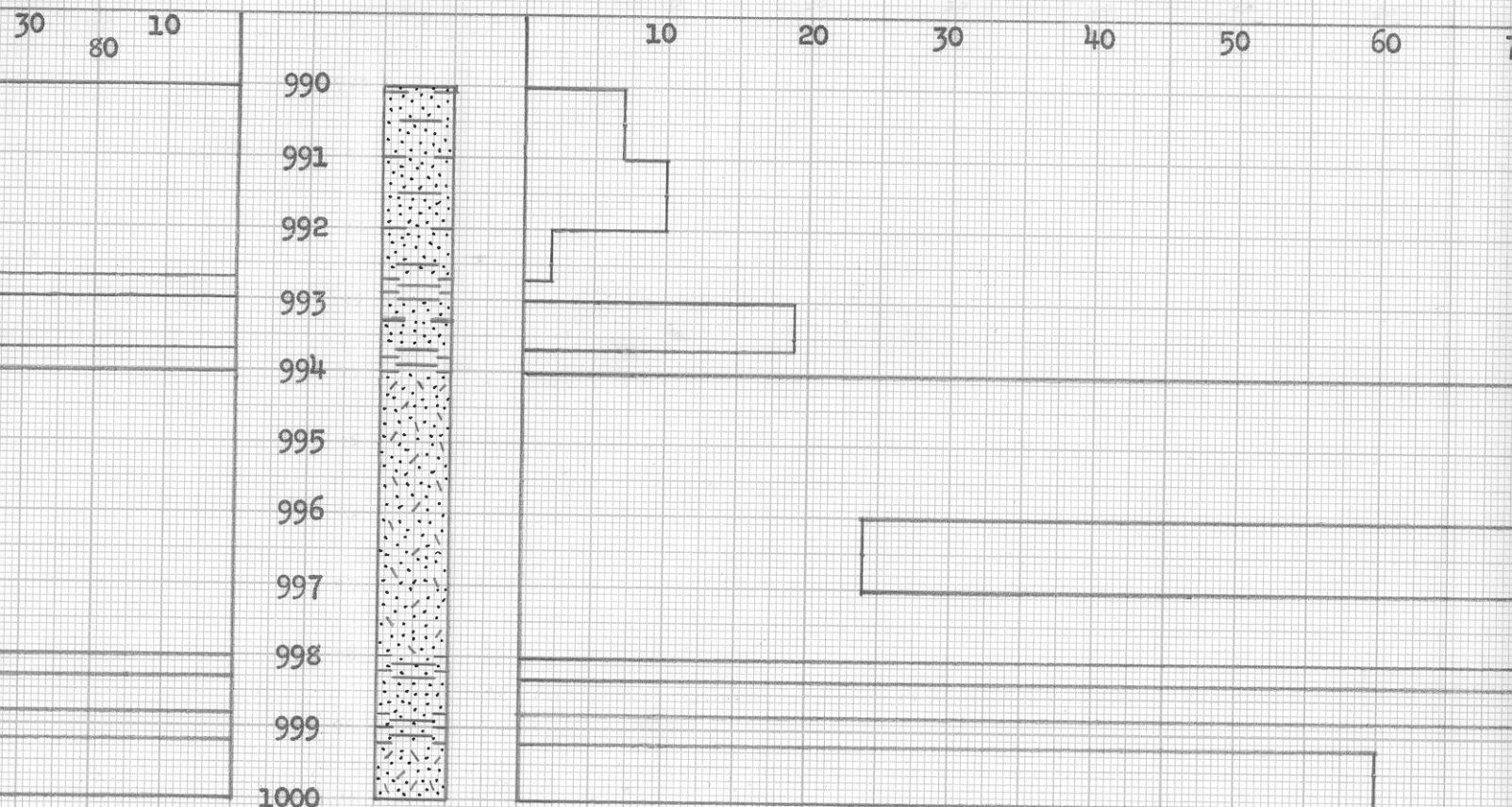
5.3

990.0 - 1000.0

8.7

OIL SAT.,
PERCENT

AIR PERMEABILITY, IN MILLIDARCYS



SHALY SANDSTONE



SHALE

KANSAS CRUDE COMPANY

CUMMINGS "B" LEASE

WELL NO. 20

WOODSON COUNTY, KANSAS

RE	AVERAGE PERCENT POROSITY	AVG. OIL SATURATION PERCENT	AVG. WATER SATURATION PERCENT	AVG. OIL CONTENT BBLs./A.FT.	TOTAL OIL CONTENT BBLs./ACRE	AVG. AIR PERMEABILITY, MILLIDARCYS
	17.5	51.2	20.9	694	2,360	9.2
	19.5	61.9	15.5	934	4,950	75.9
	18.7	57.7	17.6	840	7,310	49.9

RCYS

60 70 80 90 100 110 120



SANDY SHALE

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
AUGUST, 1979.