707

1957

CONTINENTAL OIL COMPANY

DEVELOPMENT AND RESEARCH DEPARTMENT
PRODUCTION RESEARCH DIVISION

DKW

TECHNICAL SERVICE REPORT

ADDRESS INQUIRY TO:
J. J. REYNOLDS, DIRECTOR

REPORT NO.: 136-57 JULY 1, 1957

SUBJECT: CORE ANALYSIS - CONTINENTAL OIL COMPANY - HUDSON NO. 1 WELL, NORTHWEST HARPER BLOCK, HARPER COUNTY, KANSAS

20-31s-7w

TO: MR. JOHN A. QUEEN, LYONS, KANSAS

TRANSMITTED HEREWITH ARE CORE ANALYSIS RESULTS FOR THE SIMPSON SAND AT THE SUBJECT WELL.

THERE APPEARS TO BE A THIN OIL COLUMN, 4694-4709 FEET, ON TOP OF A TRANSITION ZONE THAT IS PROBABLY WATER PRODUCTIVE. THE HIGH VACANT SPACE THAT OCCASIONALLY OCCURS IN THE TRANSITION ZONE IS INDICATIVE OF GAS PRESSURE. BELOW 4709 FEET ISOLATED OIL STRINGERS OCCUR SURROUNDED BY WATER. WELLS DRILLED HIGHER ON THE STRUCTURE MAY ENCOUNTER PRODUCIBLE OIL IN THESE ZONES.

OCCASIONAL VERTICAL FRACTURES WERE PRESENT BETWEEN 4707 AND 4739 FEET. THE SAND, FROM 4740-4750 FEET, IS A FIRM FINE GRAINED MATERIAL WITH SOME FRACTURES.

PERFORATED FROM 4696-4708 FEET THE TEST TO DATE REPORTED TWELVE BARRELS OF CLEAN OIL PER HOUR FLOWING.

F. R. CONLEY
SECONDARY RECOVERY GROUP SUPERVISOR

FRC-RW
DISTRIBUTION:
1. E. W. WEBB
2. R. G. PARKER
3. R. F. DARROW
4. E. B. NICHOLSON
5. JOHN A. QUEEN
6. P. R. WARREN
7. P. J. LANE
8. CHARLES F. ELLIS
9. FILE

F 13-256-S
REV. 11-15-49

CONTINENTAL OIL COMPANY

CORE ANALYSIS REPORT

CORE SUMMARY

OPERATOR CONTINENTAL OIL COMPANY — REPORT DATE JULY 1, 1957 — LABORATORY No. DKW
WELL HUDSON No. 1 — PRELIMINARY REPORT TO P. J. LANE
FIELD NORTHWEST HARPER BLOCK — ON JUNE 10, 1957
COUNTY HARPER — STATE KANSAS — REFERENCE ELEVATION 1525' RB
LOCATION NE SW SE

CORE RECORDS

DATE CORED		6-5-57	6-8-57				
CORE NO.		2	3				
TYPE OF CORE		DIAMOND	DIAMOND				
FORMATION		SIMPSON	SIMPSON				
INTERVAL CORED: FROM	FEET	4691	4708				
TO	FEET	4708	4755				
RECOVERED	FEET	17	47				
ANALYZED	FEET	17	43				
TYPE DRILLING MUD		OIL EMULSION	OIL EMULSION				
WEIGHT	#/ GAL	9.6	9.6				
VISCOSITY	MARSH SEC.	59	67				
WATER LOSS	cc/30 MIN	8	5.6				
pH		6.5	6.5				
CHLORIDES	PPM	40,000	37,000				
REPORTED OIL GRAVITY	°API						

AVERAGES

FORMATION							
INTERVAL AVGD.: FROM	FEET						
TO	FEET						
PRODUCTIVE (2)	FEET						
NON-PRODUCTIVE	FEET						
CORE LOSS	FEET						
PROBABLE PRODUCTION							
POROSITY	%						
PERMEABILITY — HORZ.	MD.						
SATURATION:							
RESIDUAL OIL	% PORE SP.						
RESIDUAL WATER	% PORE SP.						
VACANT	% PORE SP.						
I.W.S. (3)	% PORE SP.						

WELL COMPLETION DATA

PERFORATED 4696-4708'. TESTED 12 BARRELS CLEAN OIL PER HOUR FLOWING. (JUNE 21, 1957)

13-254-S
REV. 6-1-51

CONTINENTAL OIL COMPANY

CORE ANALYSIS REPORT

RESULTS OF LABORATORY TESTS

OPERATOR CONTINENTAL OIL COMPANY WELL HUDSON No. 1 LABORATORY No. DKW

SAMPLE NO.	DEPTH FEET	POROSITY %	PERMEABILITY TO AIR MILLIDARCYS (1)		SATURATION % PORE SPACE				SALINITY OF CORE WATER 1000 PPM (4)	PROBABLE PRODUCTION (2)	REMARKS
			HORIZONTAL	VERTICAL	OIL	WATER	VACANT	I.W.S.(3)			
SIMPSON SAND											
1	4691	0.6	<.1	<.1							
2	4692	2.1	<.1	<.1							
3	4693	2.9	0.5	<.1							
4	4694	11.2	0.9	0.8	13	31	56			OIL PRODUCTIVE PROBABLY HIGH GOR	
5	4695	4.9	<.1	<.1	17	45	38				
6	4696	0.7	<.1	<.1							
7	4697	2.9	0.1	0.2	22	51	27				
8	4698	9.0	12	4.5	12	52	36				
9	4699	16.4	294	1.2	13	44	43		80		
10	4700	12.7	36	8.4	9	53	38		80		
11	4701	16.0	116	34	9	44	47	19	79		
12	4702	14.6	117	2.1	8	42	50				
13	4703	17.6	242	209	12	31	57		81		
14	4704	14.7	254	95	11	34	55		74		
15	4705	13.7	186	13	10	45	45		71		
16	4706	17.6	872	883	9	32	59	6	69		
17	4707	17.1	739	524	11	37	52		67		
18	4708	17.7	833	865	10	31	59		64	PREDOMINANTLY WATER, FEW OIL STRINGERS	VF
19	4709	18.8	948	1052	14	30	56	5	72		VF
20	4710	13.1	128	62	8	62	30		64		
21	4711	15.1	624	676	14	45	41	7	79		
22	4712	15.9	1190	1324	5	66	29	4	58		
23	4713	16.4	598	267	5	59	36		58		VF
24	4714	15.1	486	235	4	64	32		61		
25	4715	16.3	598	717	3	76	21	6	54		VF
26	4716	16.9	807	794	1	71	28	6	54		
27	4717	13.7	421	307	6	63	31		72		
28	4718	8.4	184	111	8	70	22	19	82		
29	4719	13.9	265	169	6	55	39	11	67		
30	4720	17.6	1163	1247	13	28	59		81		
31	4721	16.7	978	766	8	47	45		65		
32	4722	16.7	1261	876	3	55	42		63		
33	4723	17.3	1286	1356	2	60	38	3	64		
34	4724	16.0	732	306	3	70	27		57		
35	4725	16.1	1009	937	30	70	0	5	62		
36	4726	16.1	737	836	1	73	26		58		
37	4727	15.6	764	810	4	75	21	6	65		
38	4728	12.1	D	D	6	77	17		71		
39	4729	13.1	266	115	3	57	40		75		
40	4730	13.6	334	200	4	61	35	14	75		
41	4731	14.6	397	416	6	51	43		79		
42	4732	13.7	303	326	5	61	34		75		
43	4733	12.4	391	414	7	44	49		90		

(1) "—" INDICATES 'LESS THAN'
(2) PROBABLE PRODUCTION IF COMPLETELY ISOLATED
(3) IRREDUCIBLE INTERSTITIAL WATER SATURATION.
(4) EQUIVALENT SODIUM CHLORIDE.

(D) DISINTEGRATED
(NF) NO FLOW
(NCF) NO COMMERCIAL FLOW
(NS) NO SAMPLE OR NO SEALED SAMPLE
(NA) NO ANALYSIS

13-254-S
REV. 6-1-51

CONTINENTAL OIL COMPANY

CORE ANALYSIS REPORT

RESULTS OF LABORATORY TESTS

OPERATOR CONTINENTAL OIL COMPANY WELL HUDSON No. 1 LABORATORY No. DKW

SAMPLE NO.	DEPTH FEET	POROSITY %	PERMEABILITY TO AIR MILLIDARCYS (1)		SATURATION % PORE SPACE				SALINITY OF CORE WATER 1000 PPM (4)	PROBABLE PRODUCTION (2)	REMARKS
			HORIZONTAL	VERTICAL	OIL	WATER	VACANT	I.W.S.(3)			
44	4734	11.7	491	526	14	25	61	14	118		
45	4735	9.8	39	43	17	38	45	21	94		
46	4736	11.6	80	105	18	34	48	18	88		
47	4737	8.4	67	69	13	33	54	11	108		VF
48	4738	7.7	35	35	9	46	45		84		VF
49	4739	8.1	9.6	10					75		VF
50	4740	9.9	14	16	0	61	39		87	NCF	
51	4741	4.2	<.1	<.1	11	72	17		145	NCF	
52	4742	9.0	2.0	1.7	7	62	31		114	NCF	
53	4743	3.1	0.3	<.1	16	41	43		191	NCF	HF
54	4744	3.4	0.4	0.3	9	54	37		172	NCF	
55	4745	5.7	1.6	0.6	6	54	40		140	NCF	VF
56	4746	2.0	<.1	<.1					346	NCF	VF
57	4747	5.2	2.4	0.4	10	54	36		168	NCF	VF-HF
58	4748	2.5	0.2	0.2	16	81	3		160	NCF	
59	4749	2.2	<.1	<.1	12	59	29		204	NCF	
60	4750	4.7	0.3	<.1					108	NCF	

VF= VERTICAL FRACTURE
HF= HORIZONTAL FRACTURE

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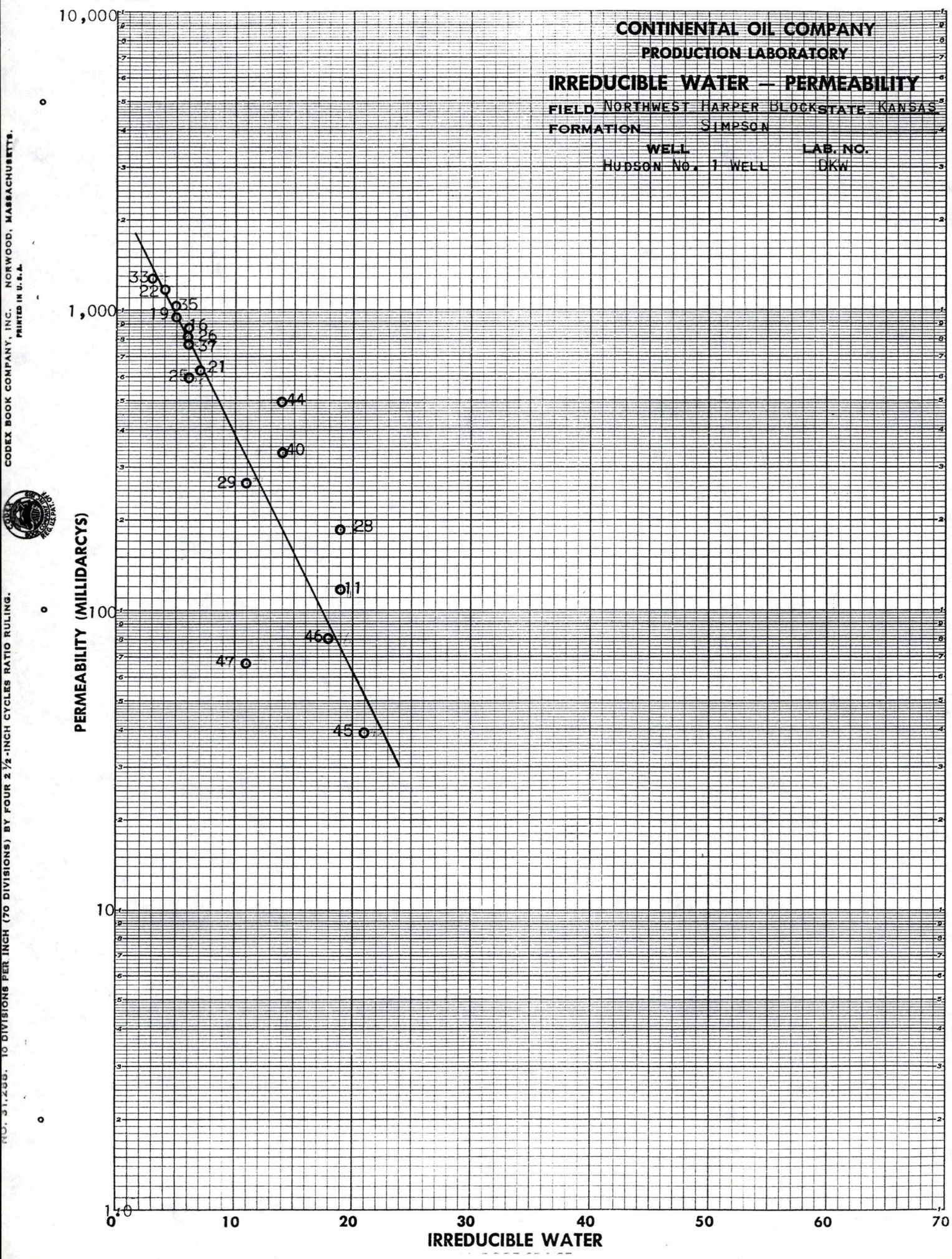
(NA) NO ANALYSIS

F 13-152-S



F 13-255-S

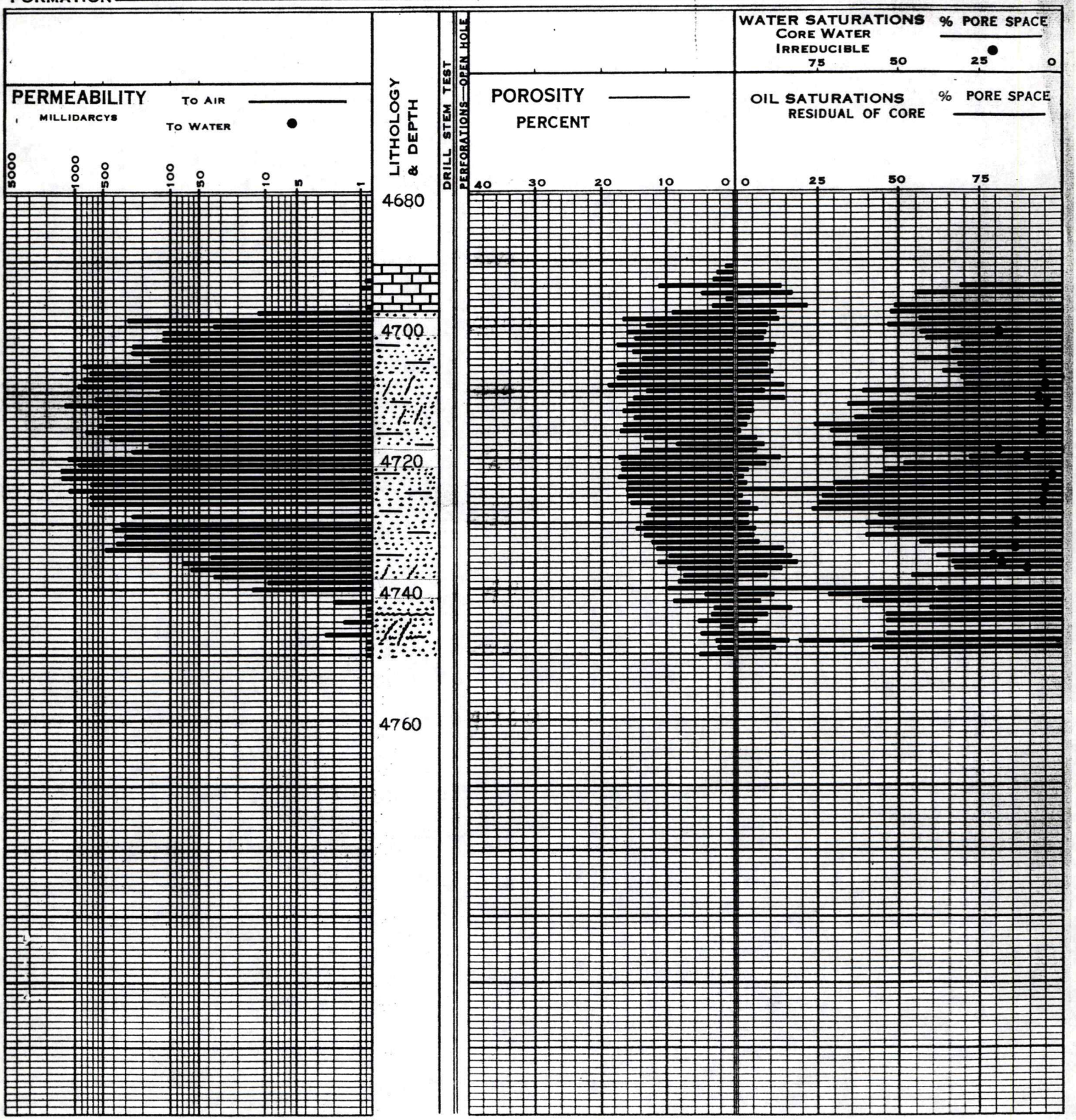
CONTINENTAL OIL COMPANY

COREGRAPH

OPERATOR CONTINENTAL OIL COMPANY WELL HUDSON No. 1 LABORATORY No. DKW

FIELD NORTHWEST HARPER BLOCK REFERENCE ELEVATION 1525' RB MUD OIL EMULSION

FORMATION SIMPSON



13-254-S
REV. 6-1-51

795

CONTINENTAL OIL COMPANY

DKW

HARPER COUNTY, KANSAS

CORE ANALYSIS REPORT

REPORT No. 131-57 **RESULTS OF LABORATORY TESTS**

OPERATOR CONTINENTAL OIL COMPANY WELL HUDSON No. 1 LABORATORY No. DKW

SAMPLE NO.	DEPTH FEET	POROSITY %	PERMEABILITY TO AIR MILLIDARCYS (1)		SATURATION % PORE SPACE				SALINITY OF CORE WATER 1000 PPM (4)	PROBABLE PRODUCTION (2)	REMARKS
			HORIZONTAL	VERTICAL	OIL	WATER	VACANT	I.W.S.(3)			
SIMPSON SAND											
1	4691	0.6	<.1	<.1							
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3	4693	2.9	0.5	<.1							
4	4694	11.2	0.9	0.8	13	31	56				
5	4695	4.9	<.1	<.1	17	45	38				
6	4696	0.7	<.1	<.1							
7	4697	2.9	0.1	0.2	22	51	27				
8	4698	9.0	12	4.5	12	52	36				
9	4699	16.4	294	1.2	13	44	43				
10	4700	12.7	36	8.4	9	53	38				
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13	4703	17.6	242	209	12	31	57				
14	4704	14.7	254	95	11	34	55				
15	4705	13.7	186	13	10	45	45				
16	4706	17.6	872	883	9	32	59				
17	4707	17.1	739	524	11	37	52				
18	4708	17.7	833	865	10	31	59				VF
19	4709	18.8	948	1052	14	30	56				VF
20	4710	13.1	128	62	8	62	30				
21	4711	15.1	624	676	14	45	41				
22	4712	15.9	1190	1324	5	66	29				
23	4713	16.4	598	267	5	59	36				VF
24	4714	15.1	486	235	4	64	32				
25	4715	16.3	598	717	3	76	21				VF
26	4716	16.9	807	794	1	71	28				
27	4717	13.7	421	307	6	63	31				
28	4718	8.4	184	111	8	70	22				
29	4719	13.9	265	169	6	55	39			OIL	
30	4720	17.6	1163	1247	13	28	59			OIL	
31	4721	16.7	978	766	8	47	45			OIL	
32	4722	16.7	1261	876	3	55	42			OIL	
33	4723	17.3	1286	1356	2	60	38			OIL	
34	4724	16.0	732	306	3	70	27				
35	4725	16.1	1009	937	30	70	0				
36	4726	16.1	737	836	1	73	26				
37	4727	15.6	764	810	4	75	21				
38	4728	12.1	D	D	6	77	17				
39	4729	13.1	266	115	3	57	40			OIL	
40	4730	13.6	334	200	4	61	35			OIL	
41	4731	14.6	397	416	6	51	43			OIL	
42	4732	13.7	303	326	5	61	34			OIL	
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(1) "—" INDICATES 'LESS THAN'
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(3) IRREDUCIBLE INTERSTITIAL WATER SATURATION. VALUES MARKED BY AN ASTERISK (*) ARE LABORATORY DETERMINATIONS.
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CONTINENTAL OIL COMPANY

CORE ANALYSIS REPORT

RESULTS OF LABORATORY TESTS

OPERATOR CONTINENTAL OIL COMPANY WELL HUDSON No. 1 LABORATORY No. DKW

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45	4735	9.8	39	43	17	38	45			OIL	
46	4736	11.6	80	105	18	34	48			OIL	
47	4737	8.4	67	69	13	33	54			OIL	VF
48	4738	7.7	35	35	9	46	45			OIL	VF
49	4739	8.1	9.6	10							VF
50	4740	9.9	14	16	0	61	39			NCF	
51	4741	4.2	<.1	<.1	11	72	17			NCF	
52	4742	9.0	2.0	1.7	7	62	31			NCF	
53	4743	3.1	0.3	<.1	16	41	43			NCF	HF
54	4744	3.4	0.4	0.3	9	54	37			NCF	
55	4745	5.7	1.6	0.6	6	54	40			NCF	VF
56	4746	2.0	<.1	<.1						NCF	VF
57	4747	5.2	2.4	0.4	10	54	36			NCF	VF-HF
58	4748	2.5	0.2	0.2	16	81	3			NCF	
59	4749	2.2	<.1	<.1	12	59	29			NCF	
60	4750	4.7	0.3	<.1						NCF	

VF=VERTICAL FRACTURE
HF=HORIZONTAL FRACTURE

F. R. CONLEY
JUNE 10, 1957

FRC-RW
DISTRIBUTION:
1. E. W. WEBB
2. P. J. LANE (2)
3. JOHN A. QUEEN
4. R. G. PARKER
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PERMEABILITIES ABOVE AND BELOW WATER-OIL CONTACT

HUDSON NO. 1 WELL
NORTHWEST HARPER BLOCK
HARPER COUNTY, KANSAS

A. AIR PERMEABILITIES IN HORIZONTAL AND VERTICAL DIRECTIONS

DEPTH FEET	PERMEABILITY TO AIR, MD* HORIZONTAL	VERTICAL	REMARKS	AVERAGE PERMEABILITIES TO AIR, MD HORIZONTAL	VERTICAL	HORIZONTAL	VERTICAL
4705	127	6					
4706	483	54		430	15	893	26
4707	682	98					
4708	723	871	VERTICAL FRACTURE**	835	986		
4709	948	1052	VERTICAL FRACTURE**				
			PROBABLE OIL-WATER CONTACT				
1710	55	165					

AGE OF TWO OR THREE ROUTINE 7/8" PLUGS PER FOOT
RACTURES IN ROUTINE PLUGS

B. EFFECTIVE OIL AND BRINE PERMEABILITIES IN VERTICAL DIRECTION

SAMPLE NO.	AIR PERMEABILITY (K_A) MD	EFFECTIVE PERMEABILITY BRINE (K_W)* MD	BRINE (K_W)* %K_A	OIL (K_O)** MD	OIL (K_O)** %K_A	K_W/K_O
JD	15V	2.6	0.84	32	2.25	86	0.35
4706	16V	27	12.2	45	27.2	100	0.45
4707	17V	34	10.8	32	26.4	78	0.41
4708	18V	894	215	24	751	84	0.22
4710	20V	686	185	27	612	89	0.30
AVERAGE				32		87	0.37

* EFFECTIVE PERMEABILITY TO BRINE (25000 PPM NaCl) IN PRESENCE OF RESIDUAL OIL
** EFFECTIVE PERMEABILITY TO OIL IN PRESENCE OF IRREDUCIBLE WATER