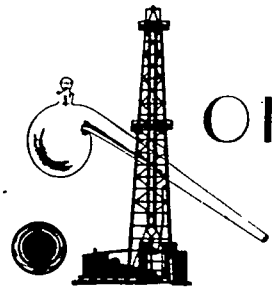


OILFIELD RESEARCH LABORATORIES

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

July 28, 1983

James E. Russell Petroleum, Inc.
P. O. Box 2618
Abilene, Texas 79604

Gentlemen:

Enclosed herewith is the report of the analysis of the rotary core taken from the Nelson Lease, Well No. RW-15, located in Allen County, Kansas and submitted to our laboratory on July 20, 1983.

Your business is greatly appreciated.

Very truly yours,

OILFIELD RESEARCH LABORATORIES

Sanford A. Michel

Sanford A. Michel

SAM/rmc

3 c to Abilene, Texas
2 c to Chanute, Kansas

Oilfield Research Laboratories

GENERAL INFORMATION & SUMMARY

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-15

Location 1590' WEL & 440' SNL, NW¼

Section 28 Twp. 26S Rge. 21E County Allen State Kansas

Elevation, Feet Datum: Mean Sea Level (Ground Level)	1068.3
Name of Sand	Bartlesville
Top of Core	652.0
Bottom of Core	712.1
Top of Sand	665.3
Bottom of Sand	710.9
Total Feet of Permeable Sand	20.3
Total Feet of Productive Sand	9.4

Distribution of Permeable Sand: Permeability Range Millidarcys	Feet	Cum. Ft.
0.0 - 0.50	2.4	2.4
0.50 - 1.0	3.7	6.1
1.0 - 2.0	1.8	7.9
4.0 - 6.0	2.6	10.5
6.0 - 8.0	3.2	13.7
8.0 - 10.0	0.5	14.2
10.0 - 16.0	5.3	19.5
95.0 - 97.0	0.8	20.3

	Laboratory	Net
Average Permeability Millidarcys	9.3	15.5
Average Percent Porosity	12.5	15.6
Average Percent Oil Saturation	27.3	38.4
Average Percent Water Saturation	61.6	46.5
Average Oil Content, Bbls./A. Ft.	286.	463.
Total Oil Content, Bbls./Acre	8,106.	4,352.
Average Percent Oil Recovery by Laboratory Flooding Tests	8.3	-
Average Oil Recovery by Laboratory Flooding Tests, Bbls./A. Ft.	103.	-

The core was sampled by a representative of Oilfield Research Laboratories. Salt water mud and KCl were used as a drilling fluid.

FORMATION CORED

The detailed log of the formation cored is as follows:

Depth Interval, Feet	Description
652.0 - 665.3	Shale, gray.
665.3 - 665.6	Shale and sandstone, laminated, gray and light brown.
665.6 - 666.2	Shale, gray.
666.2 - 667.0	Sandstone, slightly shaly, light brown, with scattered gray shale and mica partings.
667.0 - 669.2	Sandstone, light brown, with scattered gray shale and mica partings.
669.2 - 669.8	Shale and sandstone, laminated, gray and light brown.
669.8 - 671.0	Sandstone, shaly, light brown, with scattered gray shale and mica partings.
671.0 - 672.0	Sandstone, very shaly, grayish light brown, with scattered gray shale and mica partings.
672.0 - 673.0	No core.
673.0 - 675.0	Sandstone, very shaly, grayish light brown, with scattered gray shale and mica partings.
675.0 - 677.3	Sandstone, very shaly, gray.
677.3 - 677.7	Sandstone, very shaly, grayish brown.
677.7 - 679.3	Sandstone, very shaly, gray.
679.3 - 679.7	Sandstone, very shaly, grayish brown.
679.7 - 680.4	Shale, slightly sandy, gray.
680.4 - 681.0	Sandstone, shaly, brown.

Depth Interval, Feet	Description
681.0 - 681.6	Sandstone, slightly shaly, brown, with scattered carbonaceous inclusions.
681.6 - 682.5	Sandstone, very shaly, grayish light brown.
682.5 - 684.0	Sandstone, brown.
684.0 - 684.7	Sandstone, very shaly, conglomeratic, grayish brown.
684.7 - 685.3	Limestone, conglomeratic, grayish brown.
685.3 - 686.0	Sandstone, very shaly, conglomeratic, slightly calcareous, grayish brown.
686.0 - 687.6	Limestone, grayish light brown, containing a vertical fracture.
687.6 - 689.0	Sandstone, very shaly, light brown, with scattered mica partings.
689.0 - 690.2	Sandstone, light brown.
690.2 - 691.0	Sandstone, slightly shaly, light brown, with scattered gray shale and mica partings.
691.0 - 691.7	Sandstone, light brown, slightly micaceous.
691.7 - 693.0	Sandstone, shaly, brown.
693.0 - 693.2	Shale, gray.
693.2 - 693.5	Sandstone, very shaly, grayish brown.
693.5 - 695.0	Sandstone, slightly shaly, slightly micaceous, brown.
695.0 - 695.5	Sandstone, slightly micaceous, brown.
695.5 - 695.7	Sandstone, shaly, grayish brown.
695.7 - 707.5	Shale, gray.
707.5 - 708.5	Shale, slightly sandy, gray.
708.5 - 710.9	Sandstone, very shaly, grayish light brown.
710.9 - 712.1	Shale, dark gray.

LABORATORY FLOODING TESTS

The sand in this core responded to laboratory flooding tests, as a total recovery of 339 barrels of oil per acre was obtained from 3.3 feet of sand. The weighted average percent oil saturation was reduced from 41.0 to 32.7, or represents an average recovery of 8.3 percent. The weighted average effective permeability of the samples is 1.82 millidarcys, while the average initial fluid production pressure is 32.5 pounds per square inch.

PRIMARY RECOVERY

A detailed analysis of the core data would indicate that the pay sand section is from 680.4 feet to 695.5 feet. A well in this area should produce approximately 40 barrels of oil per acre foot by primary methods. These recovery estimates assume a pressured, virgin reservoir.

Any oil previously produced from the area represented by this core should be deducted from the above estimate.

WATERFLOOD RECOVERY

The estimated additional oil recovery from a well in this vicinity by waterflood is approximately 140 barrels per acre foot.

	PRIMARY AND SECONDARY		
Oil Recovery Barrels Stock Tank	Solution Gas Energy	Increase By Waterflood After Primary	Total
Barrels per Acre Foot	40	140	180

RESULTS OF SATURATION & PERMEABILITY TESTS

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-15

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	Total			Ft.	Cum. Ft.		
1	665.5	11.6	27	66	93	243	0.28	0.3	0.3	73	0.08
2	666.5	15.6	28	48	76	339	7.2	0.8	1.1	271	5.76
3	667.5	16.7	18	54	72	233	13.	1.0	2.1	233	13.00
4	668.6	16.4	23	53	76	293	15.	1.2	3.3	352	18.00
5	669.5	11.4	14	84	98	124	1.9	0.6	3.9	74	1.14
6	670.5	14.1	33	54	87	361	1.0	1.2	5.1	433	1.20
7	671.5	11.3	19	76	95	167	0.48	1.0	6.1	167	0.48
8	673.7	8.3	23	73	96	148	Imp.	1.0	7.1	148	0.00
9	674.5	12.0	29	69	98	270	0.51	1.0	8.1	270	0.51
10	675.6	8.1	5	91	96	31	Imp.	1.0	9.1	31	0.00
11	676.7	7.0	6	87	93	33	Imp.	1.3	10.4	43	0.00
12	677.5	12.9	26	72	98	260	0.34	0.4	10.8	104	0.14
13	678.5	7.5	11	83	94	64	Imp.	1.6	12.4	102	0.00
14	679.5	10.1	25	72	97	196	Imp.	0.4	12.8	78	0.00
15	680.6	16.7	35	48	83	454	4.2	0.6	13.4	272	2.52
16	681.5	16.0	29	49	78	360	6.1	0.6	14.0	216	3.66
17	682.6	18.7	36	41	77	522	96.	0.8	14.8	418	76.80
18	683.6	15.1	50	38	88	586	13.	0.7	15.5	410	9.10
19	684.6	14.3	27	58	85	300	5.5	0.7	16.2	210	3.85
20	685.6	7.3	25	72	97	142	0.16	0.7	16.9	99	0.11
21	686.5	6.8	4	87	91	21	Imp.	1.0	17.9	21	0.00
22	687.5	11.0	13	70	83	111	0.87	0.6	18.5	67	0.52
23	688.6	10.5	39	56	95	318	0.69	1.4	19.9	445	0.97
24	689.5	14.6	42	48	90	476	11.	1.2	21.1	571	13.20

Continued

RESULTS OF SATURATION & PERMEABILITY TESTS

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-15

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	Total			Ft.	Cum. Ft.		
25	690.5	14.7	44	37	81	502	7.2	0.8	21.9	402	5.76
26	691.5	14.6	52	39	91	589	10.	0.7	22.6	412	7.00
27	692.5	15.0	46	46	92	535	4.6	1.3	23.9	696	5.98
28	693.6	16.8	29	44	73	378	8.3	0.5	24.4	189	4.15
29	694.5	16.7	28	58	86	363	7.5	1.0	25.4	363	7.50
30	695.4	15.5	32	50	82	385	13.	0.5	25.9	193	6.50
31	708.6	12.3	20	78	98	191	Imp.	0.7	26.6	134	0.00
32	709.5	12.0	41	53	94	382	0.73	0.7	27.3	267	0.51
33	710.6	11.3	39	52	91	342	Imp.	1.0	28.3	342	0.00
			AVERAGES							TOTALS	
	665.3 - 679.7	11.4	19.2	70.6			5.4		12.8	2,379	40.31
	680.4 - 695.5	13.8	34.0	53.1			12.2		13.1	4,984	147.62
	708.5 - 710.9	11.8	34.0	59.9			0.73		2.4	743	0.51
	665.3 - 710.9	12.5	27.3	61.6			9.3		28.3	8,106	188.44

RESULTS OF LABORATORY FLOODING TESTS

Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-15

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
1	665.5	11.2	28	243	0	0	28	65	243	0	Imp.	-
2	666.5	15.8	28	343	0	0	28	49	343	0	Imp.	-
3	667.5	17.2	17	227	0	0	17	55	227	0	Imp.	45
4	668.6	16.0	23	285	0	0	23	75	285	18	0.30	40
5	669.5	11.8	14	128	0	0	14	84	128	0	Imp.	-
6	670.5	14.6	32	362	0	0	32	55	362	0	Imp.	-
7	671.5	11.2	19	165	0	0	19	76	165	0	Imp.	-
8	673.7	8.7	23	155	0	0	23	73	155	0	Imp.	-
9	674.5	12.4	28	269	0	0	28	70	269	0	Imp.	-
10	675.6	8.7	5	34	0	0	5	91	34	0	Imp.	-
11	676.7	7.2	6	34	0	0	6	87	34	0	Imp.	-
12	677.5	12.7	26	256	0	0	26	72	256	0	Imp.	-
13	678.5	8.0	11	68	0	0	11	85	68	0	Imp.	-
14	679.5	9.6	26	194	0	0	26	72	194	0	Imp.	-
15	680.6	17.0	35	462	5	66	30	55	396	80	1.27	30
16	681.5	16.1	29	362	0	0	29	55	362	0	Imp.	-
17	682.6	19.2	36	536	4	60	32	58	476	292	5.02	30
18	683.6	15.4	50	597	20	239	30	59	358	50	0.90	35
19	684.6	14.8	27	310	0	0	27	70	310	68	1.35	30
20	685.6	7.5	25	145	0	0	25	72	145	0	Imp.	-
21	686.5	7.0	4	22	0	0	4	87	22	0	Imp.	-
22	687.5	11.5	13	116	0	0	13	72	116	0	Imp.	-
23	688.6	11.0	38	324	0	0	38	57	324	0	Imp.	-
24	689.5	15.0	42	489	6	70	36	56	419	22	0.50	35

Continued

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.

RESULTS OF LABORATORY FLOODING TESTS

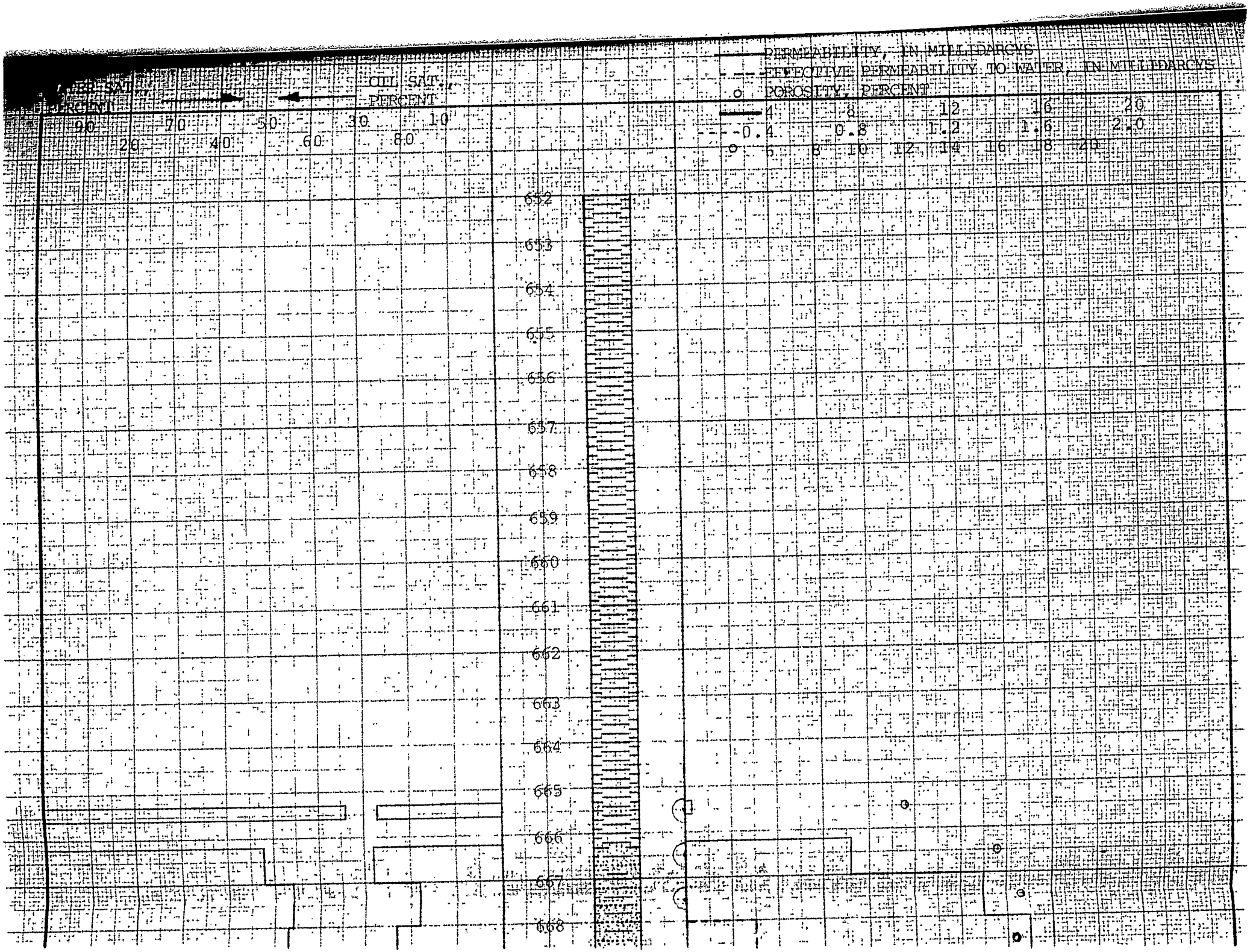
Company James E. Russell Petroleum, Inc. Lease Nelson Well No. RW-15

Sample No.	Depth, Feet	Effective Porosity Percent	Original Oil Saturation		Oil Recovery		Residual Saturation			Volume of Water Recovered cc*	Effective Permeability Millidarcys**	Initial Fluid Production Pressure Lbs./Sq./In.
			%	Bbls./A. Ft.	%	Bbls./A. Ft.	% Oil	% Water	Bbls./A. Ft.			
25	690.5	14.7	44	502	0	0	44	38	502	0	Imp.	-
26	691.5	14.2	53	584	0	0	53	38	584	0	Imp.	-
27	692.5	15.0	46	535	0	0	46	46	535	0	Imp.	-
28	693.6	16.6	29	373	0	0	29	45	373	0	Imp.	-
29	694.5	17.2	27	360	0	0	27	60	360	6	0.11	50
30	695.4	15.7	32	390	0	0	32	58	390	14	0.30	45
31	698.6	12.4	20	192	0	0	20	78	192	0	Imp.	-
32	699.5	12.5	40	388	0	0	40	54	388	0	Imp.	-
33	710.6	11.3	39	342	0	0	39	52	342	0	Imp.	-
						AVERAGES						
	680.4 - 695.5	16.5			8.3	103	32.7	56.9	416		1.82	32.5

Notes: cc—cubic centimeter.

*—Volume of water recovered at the time of maximum oil recovery.

**—Determined by passing water through sample which still contains residual oil.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EFFECTIVE PERMEABILITY TO WATER, IN MILLIDARCYS
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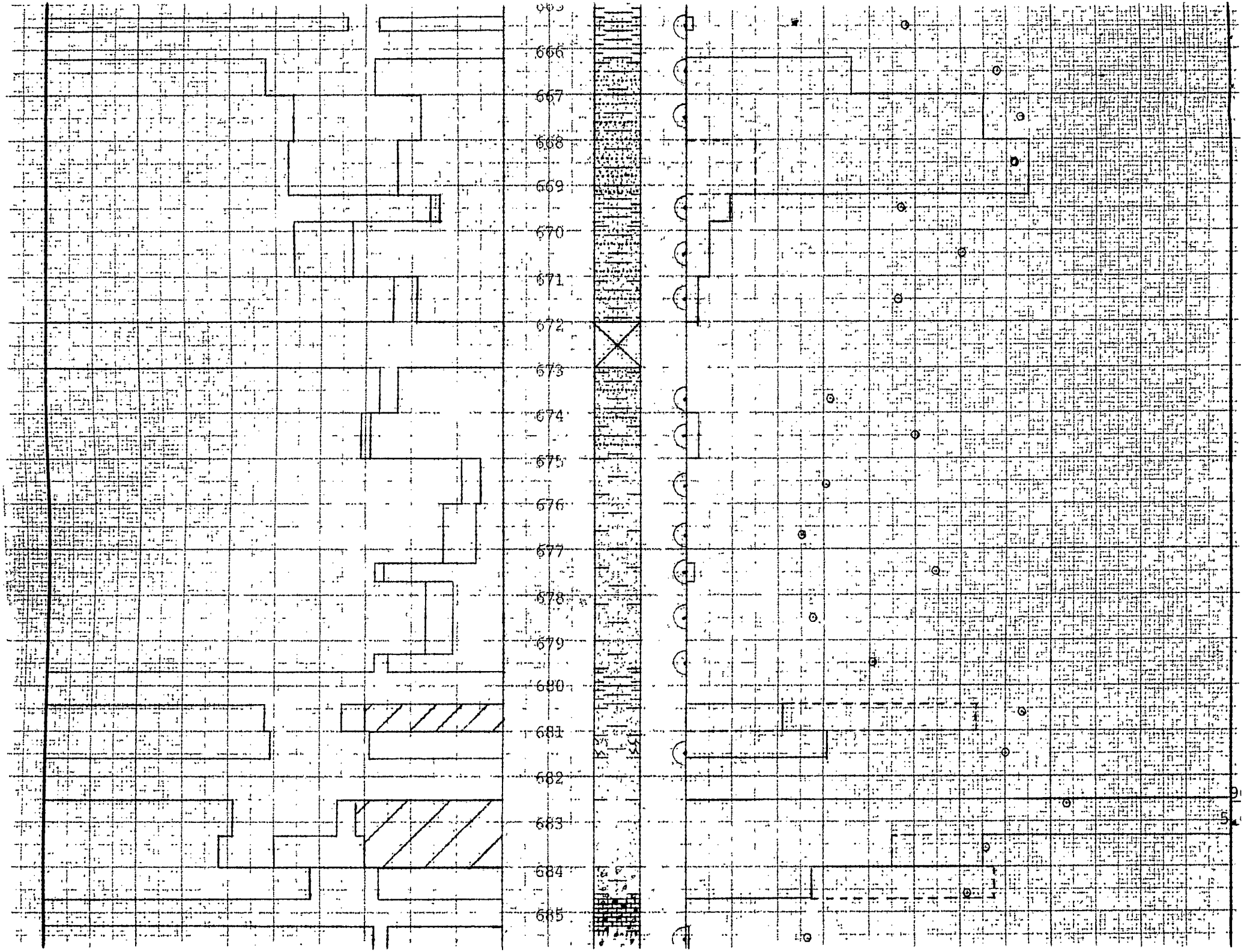
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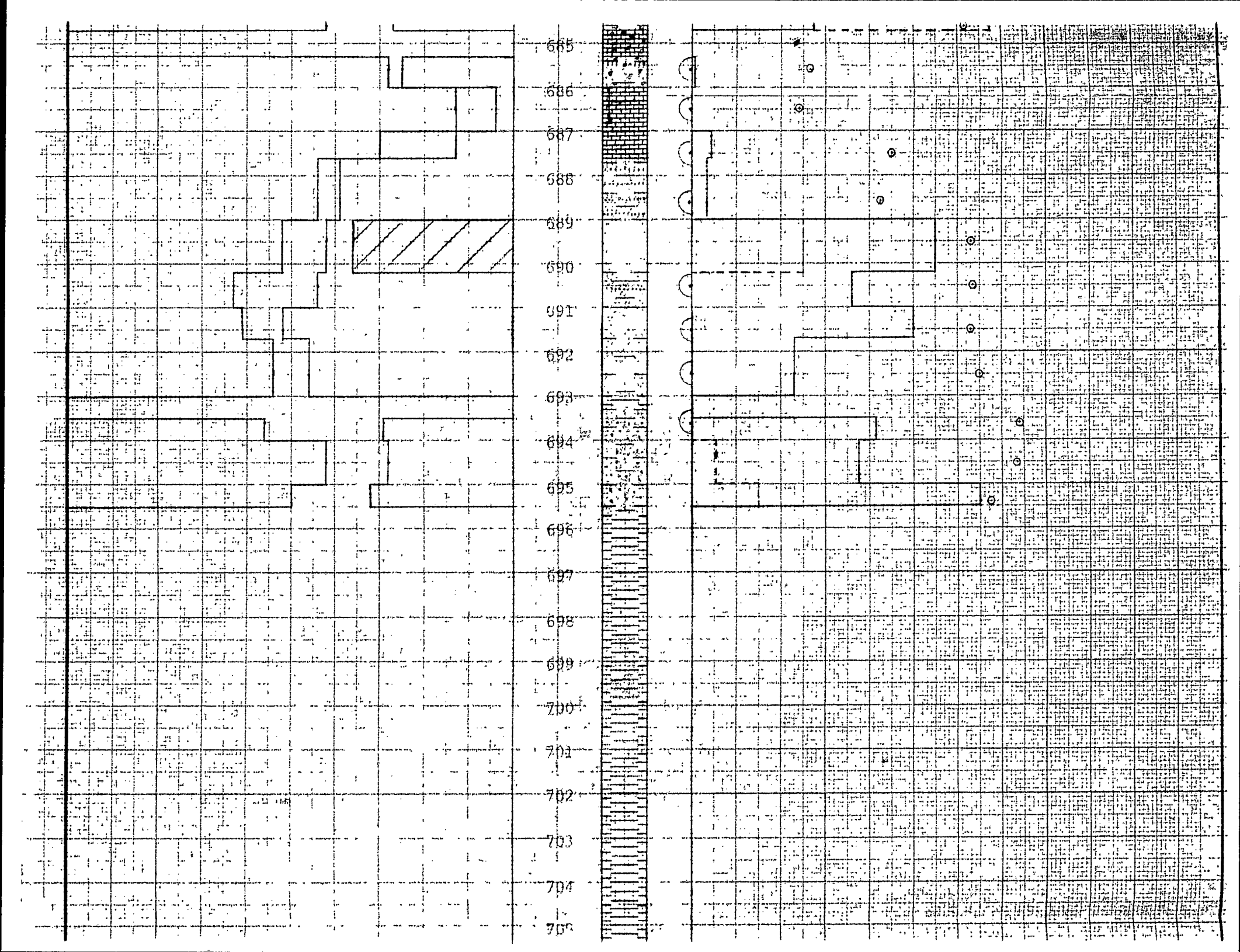
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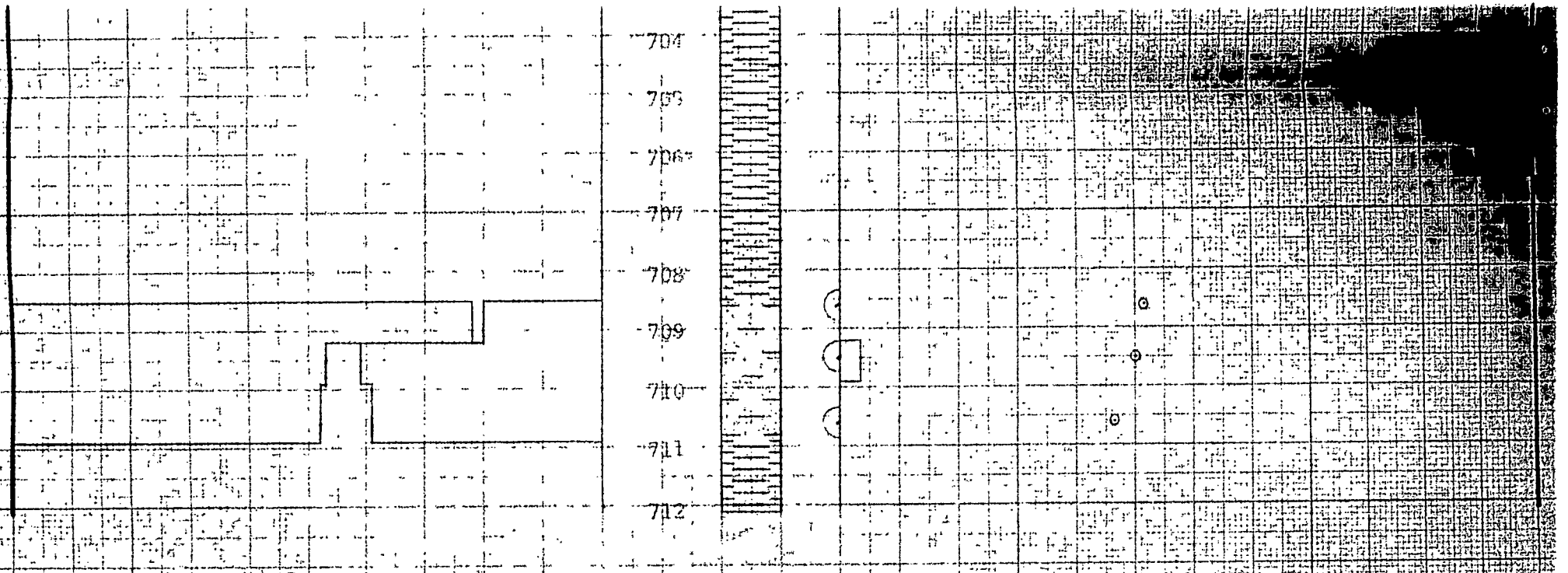
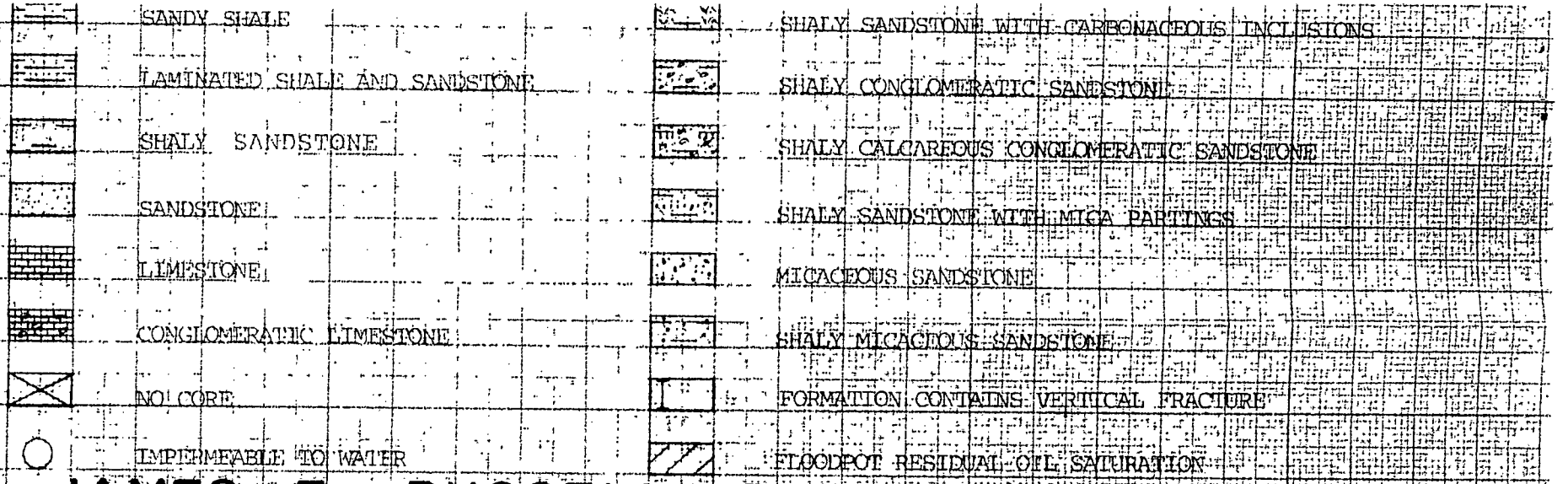


KEY:

- SHALE
- SANDY SHALE
- LAMINATED SHALE AND SANDSTONE
- SHALY SANDSTONE
- SANDSTONE
- LIMESTONE
- CONGLOMERATIC LIMESTONE
- NO CORE
- IMPERMEABLE TO WATER
- SHALY SANDSTONE WITH SHALE AND MICA PARTINGS
- SANDSTONE WITH SHALE AND MICA PARTINGS
- SHALY SANDSTONE WITH CARBONACEOUS INCLUSIONS
- SHALY CONGLOMERATIC SANDSTONE
- SHALY CALCAREOUS CONGLOMERATIC SANDSTONE
- SHALY SANDSTONE WITH MICA PARTINGS
- MICACEOUS SANDSTONE
- SHALY MICACEOUS SANDSTONE
- FORMATION CONTAINS VERTICAL FRACTURE
- FLOODPOT RESIDUAL OIL SATURATION

JAMES E. RUSSELL PETROLEUM, INC.



JAMES E. RUSSELL PETROLEUM, INC.

NELSON LEASE — WELL NO. RW-15

ALLEN COUNTY, KANSAS

DEPTH INTERVAL, FEET	AVERAGE PERCENT POROSITY	AVERAGE OIL SATURATION PERCENT	AVERAGE WATER SATURATION PERCENT	AVERAGE PERMEABILITY, MILLIDARCYS
665.3 - 679.7	11.4	19.2	70.6	5.4
680.4 - 695.5	13.8	34.0	53.1	12.2
708.5 - 710.9	11.8	34.0	59.9	0.73
665.3 - 710.9	12.5	27.3	64.6	9.3

NOTE: ELEVATION, FEET - DATUM: MEAN SEA LEVEL (GROUND LEVEE) 1068.3

OILFIELD RESEARCH LABORATORIES
CHANUTE, KANSAS
JULY, 1983 RAL