WASKADA ALIDA BEDS OIL POOL

WATERFLOOD POTENTIAL

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Prepared for:

OMEGA HYDROCARBONS LTD.

August 1, 1974

D&S PETROLEUM CONSULTANTS LTD.

LONDON, England. CALGARY, Alberta

D&S PETROLEUM CONSULTANTS LTD.
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Telephone: 403-266-1601 Cable: Denescons Calgary

August 9, 1974

Omega Hydrocarbons Ltd.
574, 330 Fifth Avenue S.W.
Calgary, Alberta.

Attention: Mr. J. Hall

Dear Sir:

Re: Waskada Alida Beds Oil Pool

As requested, we have reviewed the waterflooding potential of the Waskada Alida Beds Oil Pool of Manitoba, effective August 1st., 1974. The pool is geographically located on Figure 1 while Figure 2 is a well map of the pool and immediate area. The pool potential is summarized as follows:

	Net Remaining Reserves bbls.	Cash Flow Undiscounted M$	Cash Flow Discounted @ 9% M$
Primary Depletion	202,225	812.1	554.3
Waterflood	675,052	3,627.7	2,310.2

A summary forecast of production, revenue and costs is given in Table 1 for the six Company wells if operation is continued as at present. A summary forecast of pool production, revenue and costs is given in Table 2. The

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forecast includes the four Copperhead wells to the south. This forecast is based on the six Company wells to the north which remain unaffected by a partial water drive at the southern end of the pool. Table 2 represents a primary depletion base case for comparison with a pool waterflood, presented in Table 3.

Although no petrophysical data are available (such as reservoir fluid PVT analyses, relative permeability data, bottom-hole pressure measurements and the like) and in fact gas production has not been measured, it is felt that the analysis presented in the attached report is realistic. In lieu of actual data, correlations reported in the literature have been utilized. Good agreement has been achieved between theoretical estimates and actual pool performance using this approach.

Waterflooding of the pool appears to be wholly feasible but will be hindered by the presence of a large free-gas saturation in the reservoir. This saturation is present due to the advanced maturity of the existing primary depletion operation. As a consequence, even at high rates of water injection response, will not be discernible for at least one and one-half years, or longer.

It has been a pleasure to be of service. Please contact us concerning any matters which may require clarification.

Yours very truly

D&S PETROLEUM CONSULTANTS LTD.

G. G. Meisner, P. Eng.

GGM:rk

WASKADA ALIDA BEDS POOL

INTRODUCTION

This pool, containing ten oil wells, was discovered and developed during 1967. The pool is approximately 50 miles south of the Virden-Roselea Mississippian oil fields.

The wells have been completed with a light acid wash which appears to have been successful in establishing good production from the Alida beds producing zone. Individual well problems have developed over the years some of which are mechanical in nature. It is probable that a well by well review isolating the mechanical problems might reveal wells that could benefit from restimulation.

The pool has been producing by solution gas drive since discovery and has produced a large part of the primary reserve. Recent pressure measurements suggest that the reservoir pressure is in the 150 to 350 psi range. The measurements actually indicate a pressure of about 150 psi on a well which had been shut in for two weeks. The difference between the shut-in pressure and extrapolated reservoir pressure will be a function of the effective permeability of the reservoir.

Although there is a water leg downdip of the pool which is apparently affecting the four southern wells, there is not an effective water drive. It must be stated, however, that the best production is taken from the four Copperhead wells which are unquestionably being influenced by water influx. Natural water influx is not strong enough to influence more than a limited area. The production history for each well has been plotted on Figures 3 through 12. Although reservoir data is limited, the performance of the pool, at this stage of depletion, is consistent with the oil-in-place used in this report.

The pool production performance has been analyzed by separating the Copperhead wells, which are producing some water and which are believed to be affected to some extent by a water drive. When this is done reasonable agreement is achieved amongst the mapped oil in place, the decline curve extrapolated recovery factor and the theoretical Muskat recovery factor. Based on the foregoing the current reservoir pressure is estimated at about 350 psig.

Gas production has not been measured but it is reported that some gas was blown down early in the pool life and that gas production has diminished since. This may suggest that a small gas cap was present initially but on the other hand the gas production may have declined as the oil production declined. Without a gas measurement history our interpretation of a small insignificant gas cap cannot be proven but from the battery operator's recollection of the performance of the flare this interpretation seems justified. In this analysis then, it has been assumed that there was no effective gas cap but that the oil was saturated with gas at reservoir conditions.

Since there are no PVT measurements it was necessary to use a correlation published in the literature (Lasater). Waterflood data from similar reservoirs was used in the study.

The purpose of this study was to evaluate the feasibility of waterflooding.

CONCLUSIONS

1) The original oil-in-place in the pool is estimated at 2,876,000 stock tank barrels.

2) The ultimate primary recovery factor is about 25 percent of the original oil-in-place.

3) The ultimate waterflood plus primary recovery factor will be about 50 percent of the original oil-in-place.

RECOMMENDATIONS

1) The pool should be waterflooded as soon as possible using a Tilston Beds water supply well. A well drilled in 13-30 would serve the multiple purpose of evaluating the location for Alida beds oil production, and possible Tilston beds oil production. Failing in this a Tilston beds water supply well should be developed at the location.

2) To initiate a waterflood, whether or not the pool is to be unitized, we would recommend that the following wells be converted to water injection service initially:

4-30-25-1 W1
12-30-25-1 W1

If necessary well 6-30 could later be added as an injector.

RESERVOIR DESCRIPTION

a) Geology

The reservoir is developed in the upper porous member of the Alida beds which dip to the south-west. Updip, the porous member has been subjected to weathering and is tight. The pay zone is overlain by 10 to 15 feet of cap rock and 30 feet of dense Marly beds under the pay zone act as a base seal. The pay zone is impermeable to the west due to a facies change and to the east due to erosion or subcropping of the beds against the unconformity. Below the base seal another 20 feet of porous Alida development is present but wet.

Water is present downdip in the pay zone and a gas cap may have been present in the pool initially. A cross section is provided on Figure 13.

b) Net Pay

The net pay has been picked from the porosity log using a porosity cut-off of seven percent. This cut-off has been observed to correspond approximately to a permeability cut-off of about one to two millidarcies and clearly indicates the good pay. A map of net pay is shown on Figure 14.

c) Porosity, Permeability and Water Saturation

Core data for the Omega wells was processed using a one millidarcy cut-off in the pay zone. The average pool porosity was determined to be 13.7 percent and the average permeability was found to be 9.4 millidarcies. A plot of the relationship between porosity and permeability is given on Figure 15.

The average water saturation for the pool has been estimated to be 35.9 percent from the resistivity logs.

d) Oil-Water Relative Permeability

Relative permeability curves which are considered representative of the reservoir have been estimated from a relationship presented in the literature. The curves are given on Figure 16 for water and oil. A fractional flow curve for the reservoir is also shown on the diagram.

e) PVT Data

No PVT data is available from the pool. The crude falls within the range of the Lasater correlation which is presented in Table 4. It has been assumed that the crude was saturated with gas at initial reservoir conditions.

f) Oil-In-Place

The oil-in-place has been calculated as 2,876,000 stock tank barrels. This calculation is provided in Table 5.

PRIMARY DEPLETION

Recovery Efficiency

A Muskat primary depletion prediction has been prepared from the bubble point pressure. The prediction is presented in Table 6. Also presented in Table 6 are the gas-oil relative permeability ratio data.

It is estimated that the primary recovery from the bubble point will be 25 percent of the original oil-in-place. Although it is believed that the production mechanism will eventually become a partial water drive it appears that insufficient natural force is being exhibited to materially accelerate production or modify the present value of the property.

WATERFLOOD POTENTIAL

Recovery Factor Calculation

Because of the depletion stage of the reservoir a large free gas saturation is indicated by the Muskat depletion drive calculation in Table 6. It is our opinion that the current average reservoir pressure is about 350 psi which means that the gas saturation of hydrocarbon pore space is only slightly less than 30 percent.

The crude oil viscosity is about 4.0 cps at reservoir conditions. It is believed that in a water wet system such as this no problem will be encountered in the formation of an oil bank. The water saturation will increase at the wall of the pore space and first the gas and then the oil will be displaced. The accumulation of oil saturation will form the bank.

It is evident though, that the flood response will be materially influenced by the presence of the large free gas phase. There will be no detectable production response until the free gas saturation has been reduced materially so that injection will proceed for some lengthy period with no visible effect. In this report the method of Prats et al was used to predict future performance.

Vertical conformance was calculated using the Muskat method. Areal sweep efficiency for a 5 spot pattern was used. The displacement efficiency was calculated using the Welge modification of the Buckley Leverett technique. The ultimate recovery factor including primary and secondary recovery will amount to approximately 50 percent of the original oil-in-place.

ECONOMICS

a) Primary

The economics of continued primary operation for the pool (including the Copperhead wells) are presented in Table 2. This forecast is based upon the performance of the Omega wells only, since it is believed that the Copperhead wells are being influenced by water encroachment. The forecast shown is based upon an extrapolation of the production decline trends which is also consistent with the Muskat prediction.

The Manitoba tax legislation has been considered. This legislation requires that the royalty owner pay taxes on oil production.

Initial operating costs are estimated (Table 7) at $350 per well per month and these costs have been escalated at five percent per year. The initial wellhead crude price after trucking charge is $6.10 per barrel. This price has been escalated at $1.05 per barrel until 1976 and thereafter at $0.45 per barrel until 1982. The crude price and operating

costs have been held constant after 1982 due to uncertainty in estimating this far into the future and the probable interference from other competitive energy sources at these crude price levels. Economic factors are listed in Table 7. A forecast of production revenue and costs is given in Table 2. Individual projections for each Company well are given in Tables 8 through 13.

b) Waterflood

Waterflood economic factors are presented in Table 14. A base cost of $350 per well per month in 1974 escalating at five percent per year until 1982 has been used for the ten existing wells and one additional well which will be drilled to provide a water supply. The crude price schedule is the same as assumed for the primary depletion forecast. An additional charge of two cents per barrel of produced water has been incorporated to provide for handling return water. The Manitoba tax has been incorporated in the calculation. The tax is provided for in Bill 85 which makes provision for a reduction in tax for newly discovered oil but does not provide a tax reduction for incremental oil recovered by waterflooding.

It has been considered that the most probable cost for development of the property for waterflood in Table 15 is about $200,000. This cost includes the drilling of a water supply well and water treating and injection facilities. The lease already has adequate battery and treating facilities. It will be necessary to install larger pumping units when response to the water injection is evidenced in about 1976. It has been assumed that high pressure injection lines will be required to each of the five wells which will be converted to injection service.

A forecast of production, revenue and costs is given in Table 3.

DISCUSSION

The Waskada pool can best be exploited if converted to waterflood as rapidly as possible. The natural water drive is inadequate to allow recovery of the pool reserves in a reasonable length of time.

Despite the indicated high reservoir gas saturation, which has resulted from the production to date, the waterflood response should be achieved starting in about 20 months from the initiation of injection at 1,000 barrels per day. The production should then peak out rapidly and thereafter the pool will go on decline.

Because of a lack of reservoir data a conservative position has probably been taken in the assumption that five injection wells will be required to inject 1,000 barrels per day of water using a five spot injection pattern. A more suitable pattern than a five spot can likely be developed and the economics of the operation may thereby be enhanced.

It has been calculated, from the five spot pattern formula with a surface pressure limitation of 1,400 psi that peak production will match the injection rate corrected for crude oil shrinkage. The calulation considers that the effective reservoir permeability is 9.42 mds.

To initiate a waterflood, whether or not the pool is to be unitized, we would recommend that the following wells be converted to water injection service initially:

4-30-25-1 W1
12-30-25-1 W1

If necessary well 6-30 could later be added as an injector.

TABLE 1
OMEGA PRIMARY

CRUDE OIL APPRAISAL SUMMARY

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD. PROJECT :- 274-0151
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA EFFECTIVE DATE :- JUL 1,1974

YEAR	POOL OR TRACT SHARE GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	COMPANY SHARE ---PRODUCTION--- GROSS BARRELS	NET BARRELS	------COSTS------ OPERATING DOLLARS	CAPITAL DOLLARS	-NET OPER. REVENUE- ANNUAL DOLLARS	CUM DOLLARS	--------CASH FLOW---------- UNDISC. DOLLARS	PW 9 % DOLLARS	CUM PW DOLLARS
1974	11175	6.10	12375	0	6	11175	8100	10500	0	29999	29999	29999	29355	29355
1975	22502	7.15	31185	0	6	22502	16301	26460	0	71521	101521	71521	65592	94947
1976	18276	8.20	32744	0	6	18276	13231	27783	0	65249	166769	65249	54899	149846
1977	15404	8.65	34381	0	6	15404	11148	29172	0	54927	221696	54927	42399	192245
1978	13320	9.10	36101	0	6	13320	9637	30631	0	46835	268531	46835	33167	225412
1979	11737	9.55	37906	0	6	11737	8490	32162	0	39764	308295	39764	25835	251247
1980	10492	10.00	39801	0	6	10492	7588	33770	0	34216	342512	34216	20395	271642
1981	9487	10.45	41791	0	6	9487	6861	35459	0	28777	371288	28777	15736	287378
1982	8659	10.90	43880	0	6	8659	6261	37232	0	24274	395562	24274	12178	299556
1983	7738	10.90	42081	0	6	7738	5589	35658	0	19465	415027	19465	8959	308515
1984	6288	10.90	34888	0	5	6288	4517	29363	0	15214	430241	15214	6424	314939
1985	5230	10.90	29697	0	4	5230	3736	24821	0	12077	442318	12077	4679	319618
1986	4889	10.90	29697	0	4	4889	3493	24821	0	9865	452183	9865	3506	323124
1987	4262	10.90	27043	0	4	4262	3033	22499	0	7669	459852	7669	2501	325625
1988	3485	10.90	22605	0	3	3485	2459	18616	0	5828	465680	5828	1743	327368
1989	3049	10.90	20507	0	3	3049	2159	16937	0	4509	470189	4509	1237	328605
1990	2242	10.90	14948	0	2	2242	1609	12411	0	3608	473797	3608	908	329514
1991	1898	10.90	12833	0	2	1898	1372	10799	0	2849	476646	2849	658	330172
1992	1154	10.90	7092	0	1	1154	866	6205	0	2359	479005	2359	500	330672
1993	1102	10.90	7092	0	1	1102	827	6205	0	1974	480979	1974	384	331056
1994	1055	10.90	7092	0	1	1055	791	6205	0	1622	482602	1622	289	331345
1995	1011	10.90	7092	0	1	1011	759	6205	0	1300	483901	1300	213	331558
1996	971	10.90	7092	0	1	971	729	6205	0	1003	484904	1003	151	331708
1997	934	10.90	7092	0	1	934	701	6205	0	728	485632	728	100	331809
1998	900	10.90	7092	0	1	900	675	6205	0	538	486171	538	68	331877
1999	219	10.90	1763	0	1	219	164	1543	0	96	486267	96	11	331888
SUBTOT	167481		595768	0		167481	121093	504074	0	486267		486267	331888	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	167481		595768	0		167481	121093	504074	0	486267		486267	331888	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	486267	486267	0	0
9.000	331888	331888	0	0
10.000	320582	320582	0	0
12.000	300183	300183	0	0
15.000	274162	274162	0	0
20.000	239901	239901	0	0
25.000	213658	213658	0	0

TABLE 2
TOTAL POOL PRIMARY

CRUDE OIL APPRAISAL SUMMARY

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD. PROJECT :- 274-0151
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA EFFECTIVE DATE :- JUL 1,1974

POOL OR TRACT SHARE | COMPANY SHARE

YEAR	GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	PRODUCTION GROSS BARRELS	PRODUCTION NET BARRELS	COSTS OPERATING DOLLARS	COSTS CAPITAL DOLLARS	NET OPER. REVENUE ANNUAL DOLLARS	NET OPER. REVENUE CUM DOLLARS	CASH FLOW UNDISC. DOLLARS	CASH FLOW PW 9 % DOLLARS	CASH FLOW CUM PW DOLLARS
1974	18662	6.10	20666	0	6	18662	13527	17535	0	50099	50099	50099	49023	49023
1975	37578	7.15	52079	0	6	37578	27222	44188	0	119440	169539	119440	109539	158562
1976	30520	8.20	54693	0	6	30520	22096	46398	0	108965	278504	108965	91681	250243
1977	25725	8.45	57417	0	6	25725	18617	48717	0	91728	370233	91728	70806	321049
1978	22245	9.10	60288	0	6	22245	16094	51153	0	78214	448447	78214	55390	376439
1979	19600	9.55	63302	0	6	19600	14178	53711	0	66406	514853	66406	43144	419583
1980	17522	10.00	66467	0	6	17522	12672	56397	0	57141	571994	57141	34059	453642
1981	15844	10.45	69791	0	6	15844	11457	59216	0	48057	620052	48057	25280	479922
1982	14460	10.90	73280	0	6	14460	10456	62177	0	40537	660589	40537	20337	500259
1983	12923	10.90	70276	0	6	12923	9343	59548	0	32506	693095	32506	14961	515220
1984	10501	10.90	58263	0	5	10501	7593	49037	0	25407	718502	25407	10729	525949
1985	8734	10.90	49594	0	4	8734	6240	41451	0	20169	738671	20169	7813	533762
1986	8165	10.90	49594	0	4	8165	5833	41451	0	16474	755145	16474	5855	539617
1987	7118	10.90	45161	0	4	7118	5064	37573	0	12807	767953	12807	4176	543793
1988	5820	10.90	37750	0	3	5820	4106	31089	0	9733	777685	9733	2911	546705
1989	5092	10.90	34246	0	3	5092	3606	28285	0	7530	785215	7530	2057	548771
1990	3744	10.90	24797	0	2	3744	2687	20726	0	6026	791241	6026	1517	550288
1991	3170	10.90	21432	0	2	3170	2291	18034	0	4758	795999	4758	1099	551387
1992	1927	10.90	11843	0	1	1927	1446	10363	0	3939	799938	3939	835	552222
1993	1841	10.90	11843	0	1	1841	1381	10363	0	3297	803235	3297	641	552863
1994	1762	10.90	11843	0	1	1762	1321	10363	0	2709	805945	2709	483	553346
1995	1689	10.90	11843	0	1	1689	1267	10363	0	2171	808115	2171	355	553702
1996	1622	10.90	11843	0	1	1622	1217	10363	0	1675	809790	1675	251	553953
1997	1560	10.90	11843	0	1	1560	1170	10363	0	1216	811006	1216	168	554121
1998	1503	10.90	11843	0	1	1503	1127	10363	0	899	811905	899	114	554234
1999	365	10.90	2945	0	1	365	274	2577	0	161	812066	161	19	554253
SUBTOT	279693		994933	0		279693	202225	841803	0	812066		812066	554253	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	279693		994933	0		279693	202225	841803	0	812066		812066	554253	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	812066	812066	0	0
9.000	554253	554253	0	0
10.000	535372	535372	0	0
12.000	501306	501306	0	0
15.000	457850	457850	0	0
20.000	400634	400634	0	0
25.000	356809	356809	0	0

CONTINUOUS FORMS (ALBERTA) LTD.

TABLE 3
TOTAL POOL WATERFLOOD

CRUDE OIL APPRAISAL SUMMARY

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD. PROJECT :- 274-0151
COMPANY EVALUATED :- WASKADA ALIDA BEDS POOL EFFECTIVE DATE :- AUG 1,1974

YEAR	POOL OR TRACT SHARE GROSS BRDBR STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	COMPANY SHARE ---PRODUCTION--- GROSS BARRELS	NET BARRELS	-------COSTS------ OPERATING DOLLARS	CAPITAL DOLLARS	-NET OPER. REVENUE- ANNUAL DOLLARS	CUM DOLLARS	--------CASH FLOW---------- UNDISC. DOLLARS	PW 9 % DOLLARS	CUM PW DOLLARS
1974	7500	6.10	22700	200000	11	7500	5423	19250	200000	10643	10643	-189357	-185967	-185967
1975	18000	7.15	57203	0	11	18000	13014	48510	0	35583	46226	35583	32673	-153094
1976	162351	8.20	60064	45000	11	162351	117380	50036	45000	683454	729680	638454	541130	388035
1977	183949	8.65	63067	0	11	183949	132995	53482	0	824268	1553948	824268	640935	1028970
1978	112091	9.10	66220	0	11	112091	81042	56156	0	506533	2060481	506533	361349	1390319
1979	79331	9.55	69531	0	11	79331	57356	58964	0	358963	2419444	358963	234932	1625251
1980	61450	10.00	73008	0	11	61450	44429	61912	0	296615	2716059	296615	178098	1803349
1981	50166	10.45	76658	0	11	50166	36270	65008	0	250856	2966915	250856	138186	1941535
1982	42390	10.90	80491	0	11	42390	30648	68258	0	213077	3179992	213077	107683	2049218
1983	35289	10.90	83314	0	11	35289	25514	70653	0	168448	3348440	168448	78100	2127318
1984	28812	10.90	83027	0	11	28812	20831	70409	0	128803	3477243	128803	54788	2182107
1985	24343	10.90	83035	0	11	24343	17600	70416	0	99585	3576828	99585	38852	2220969
1986	21076	10.90	83046	0	11	21076	15238	70425	0	78222	3655049	78222	29005	2248974
1987	18583	10.90	83049	0	11	18583	13436	70428	0	60637	3715686	60637	19917	2268890
1988	16618	10.90	83047	0	11	16618	12015	70426	0	47931	3763616	47931	14443	2283333
1989	15029	10.90	83043	0	11	15029	10866	70422	0	36618	3800234	36618	10123	2293457
1990	13718	10.90	83036	0	11	13718	9918	70417	0	28234	3828468	28234	7161	2300618
1991	12617	10.90	83029	0	11	12617	9122	70411	0	20324	3848792	20324	4729	2305347
1992	11680	10.90	83020	0	11	11690	8444	70404	0	13591	3862383	13591	2901	2308248
1993	10872	10.90	83012	0	11	10872	7861	70396	0	7791	3870173	7791	1526	2309774
1994	7814	10.90	83291	0	11	7814	5650	53672	0	2524	3872697	2524	453	2310227
SUBTOT	933682		1545891	245000		933682	675052	1310956	245000	3872697		3627697	2310227	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	933682		1545891	245000		933682	675052	1310956	245000	3872697		3627697	2310227	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	3627697	3872697	245000	0
9.000	2310227	2544788	234560	0
10.000	2210611	2444133	233522	0
12.000	2029939	2261448	231509	0
15.000	1797901	2026541	228639	0
20.000	1490340	1714556	224216	0
25.000	1253990	1474176	220186	0

TABLE 4

EMPIRICAL FLUID PROPERTIES ANALYSIS

FIELD NAME	RESERVOIR
WASKADA	TILSTON - SOURIS VALLEY

PRESSURE	RS	BO	BG	BT	VIS. GAS	VIS. OIL	DEN. OIL	DEN. GAS
1369	259	1.118	.0018	1.118	.0140	2.370	49.3	4.56
1238	233	1.107	.0020	1.160	.0137	2.515	49.6	4.07
1106	206	1.097	.0023	1.216	.0133	2.678	49.8	3.58
974	180	1.087	.0026	1.292	.0130	2.863	50.1	3.11
842	154	1.076	.0031	1.397	.0126	3.071	50.4	2.65
710	129	1.067	.0037	1.546	.0123	3.306	50.6	2.20
578	104	1.057	.0046	1.772	.0120	3.572	50.9	1.77
446	79	1.048	.0061	2.141	.0119	3.873	51.2	1.34
314	55	1.039	.0088	2.831	.0117	4.212	51.4	.93
182	31	1.031	.0154	4.539	.0115	4.596	51.6	.53
50	8	1.022	.0569	15.310	.0114	5.027	51.9	.14

LASATER CORRELATION

TANK OIL GRAVITY = 35.0 API
SPECIFIC GAS GRAVITY = .600
RESERVOIR TEMPERATURE = 110° F
BUBBLE POINT PRESSURE = 1369 PSI
PRESSURE BASE = 14.6500 PSIA
TEMPERATURE BASE = 60 DEG F

TABLE 5

RESERVOIR FACTORS

WASKADA ALIDA BEDS POOL

Porosity, percent	13.7
Water Saturation, percent	35.9
Formation Volume Factor	1.118
Pool Area, acres	852
Average Net Pay, feet	5.5
Rock Volume, acre-feet	4,719
Original Oil-in-Place, stb	2,876,000
Primary Recovery Factor*, percent	25
Secondary Recovery Factor (Waterflood), percent	25
Ultimate Recovery Factor, percent	50

* Cumulative recovery to date approximately 450,000 barrels for 15.7 percent.

TABLE 6

MUSKAT DISSOLVED-GAS DRIVE CALCULATION

GAS CAP SIZE= 0.0000 GAS REINJECTED-FRACTION= 0.0000 FRACTION OF OIL REMAINING IN GAS CAP= 0.0000

PI = 1369.00 DP = 10.00 PMIN = 50.00 BOI = 1.11800 RSI = 259.000

PRESSURE FUNCTION TABLE

P	BO	1/BG	RS	UO	UG
1370.00	1.11800	555.5560	259.000	2.37000	.01400
1238.00	1.10700	500.0000	233.000	2.51500	.01370
1106.00	1.09700	434.7830	206.000	2.67800	.01330
974.00	1.08700	384.6150	180.000	2.86300	.01300
842.00	1.07600	322.5810	154.000	3.07100	.01260
710.00	1.06700	270.2700	129.000	3.30600	.01230
578.00	1.05700	217.3910	104.000	3.57200	.01200
446.00	1.04800	163.9340	79.000	3.87300	.01190
314.00	1.03900	113.6360	55.000	4.21200	.01170
182.00	1.03100	64.9350	31.000	4.59600	.01150
50.00	1.02200	17.5750	8.000	5.02700	.01140

RELATIVE PERMEABILITY RATIO - SATURATION TABLE

SO	KG/KO
1.00000	0.00000
.95000	.00009
.90000	.00083
.85000	.00349
.80000	.01037
.75000	.02577
.70000	.05760
.65000	.12048
.60000	.24213
.55000	.47619
.50000	.92593

DISSOLVED GAS DRIVE PERFORMANCE BY MUSKAT MATERIAL BALANCE

PRESSURE (PSIA)	OIL SATURATION (FRACTION)	OIL RECOVERY (FRACTION)	GAS RECOVERY (FRACTION)	GAS-OIL RATIO (SCF/STB)
1369.00	1.0000000	-.0000745	.0006860	259.81
1359.00	.9968041	.0023780	.0031232	257.40
1349.00	.9935643	.0048781	.0055826	256.01
1339.00	.9902795	.0074270	.0080640	254.62
1329.00	.9869488	.0100258	.0105676	253.24
1319.00	.9835709	.0126759	.0130931	251.86
1309.00	.9801448	.0153784	.0156408	250.49
1299.00	.9766691	.0181346	.0182104	249.12
1289.00	.9731428	.0209461	.0208020	247.76
1279.00	.9695646	.0238140	.0234157	246.40
1269.00	.9659331	.0267399	.0260513	245.05
1259.00	.9622471	.0297252	.0287089	243.70
1249.00	.9585051	.0327714	.0313886	242.36
1239.00	.9547057	.0358802	.0340902	241.03
1229.00	.9508490	.0391108	.0372613	239.62
1219.00	.9469457	.0423996	.0405410	242.32
1209.00	.9430152	.0457204	.0439065	246.14
1199.00	.9390590	.0491718	.0473603	249.99
1189.00	.9350773	.0524536	.0509039	253.87
1179.00	.9310704	.0558657	.0545384	257.67
1169.00	.9270385	.0593078	.0582650	261.40

PRESSURE (PSIA)	OIL SATURATION (FRACTION)	OIL RECOVERY (FRACTION)	GAS RECOVERY (FRACTION)	GAS-OIL RATIO (SCF/STB)
1159.00	.9229817	.0627798	.0620849	265.17
1149.00	.9189004	.0662817	.0659992	268.91
1139.00	.9147946	.0698132	.0700091	272.63
1129.00	.9106644	.0733744	.0741155	276.31
1119.00	.9065101	.0769651	.0783197	279.96
1109.00	.9023317	.0805854	.0826224	283.57
1099.00	.8981299	.0842242	.0869977	294.15
1089.00	.8940194	.0877953	.0903091	312.87
1079.00	.8899768	.0912919	.0942863	331.09
1069.00	.8860055	.0947204	.0984204	348.81
1059.00	.8821001	.0980864	.1027035	366.07
1049.00	.8782554	.1013948	.1071287	382.90
1039.00	.8744671	.1046501	.1116898	399.30
1029.00	.8707311	.1078564	.1163811	415.29
1019.00	.8670439	.1110171	.1211975	430.88
1009.00	.8634021	.1141355	.1261344	446.10
999.00	.8598028	.1172147	.1311876	460.94
989.00	.8562432	.1202574	.1363532	475.43
979.00	.8527208	.1232661	.1416276	489.56
969.00	.8492365	.1262093	.1472821	509.12
959.00	.8458450	.1290309	.1533869	548.12

PRESSURE (PSIA)	OIL SATURATION (FRACTION)	OIL RECOVERY (FRACTION)	GAS RECOVERY (FRACTION)	GAS-OIL RATIO (SCF/STB)
949.00	.8425630	.1317440	.1596894	585.23
939.00	.8393765	.1343628	.1661724	620.63
929.00	.8362739	.1368989	.1728221	654.45
919.00	.8332460	.1393619	.1796268	686.81
909.00	.8302846	.1417599	.1865767	717.80
899.00	.8273830	.1440998	.1936633	747.50
889.00	.8245353	.1463874	.2008793	775.97
879.00	.8217364	.1486280	.2082185	803.26
869.00	.8189819	.1508261	.2156751	829.42
859.00	.8162677	.1529857	.2232443	854.49
849.00	.8135903	.1551105	.2309215	878.51
839.00	.8109472	.1572385	.2384703	902.17
829.00	.8083437	.1594114	.2455710	926.42
819.00	.8057800	.1615457	.2527605	949.75
809.00	.8032533	.1636440	.2600356	972.17
799.00	.8007613	.1657090	.2673932	993.76
789.00	.7983148	.167.291	.2748403	1037.79
779.00	.7959454	.1696714	.2823979	1089.70
769.00	.7936464	.1715427	.2900589	1138.96
759.00	.7914098	.1733511	.2978157	1185.59
749.00	.7892291	.1751034	.3056620	1229.92

PRESSURE (PSIA)	OIL SATURATION (FRACTION)	OIL RECOVERY (FRACTION)	GAS RECOVERY (FRACTION)	GAS-OIL RATIO (SCF/STB)
739.00	.7870988	.1768053	.3135924	1272.04
729.00	.7850140	.1784617	.3216020	1312.05
719.00	.7529706	.1800768	.3296869	1350.05
709.00	.7809650	.1816487	.3378446	1386.23
699.00	.7788901	.1831381	.3460798	1421.62
689.00	.7770407	.1846029	.3543785	1455.39
679.00	.7751144	.1860455	.3627383	1487.59
669.00	.7732092	.1874680	.3711573	1518.22
659.00	.7713230	.1888725	.3796337	1547.33
649.00	.7694542	.1902608	.3881658	1574.93
639.00	.7676011	.1916344	.3967522	1601.04
629.00	.7657623	.1929950	.4053914	1625.67
619.00	.7639363	.1943440	.4140823	1648.85
609.00	.7621218	.1956828	.4228238	1670.56
599.00	.7603176	.1970126	.4316146	1690.83
589.00	.7585225	.1983348	.4404540	1709.65
579.00	.7567354	.1996504	.4493410	1727.02
569.00	.7549567	.2010105	.4583376	1742.32
559.00	.7531878	.2023678	.4673888	1756.01
549.00	.7514274	.2037177	.4764869	1768.15
539.00	.7496755	.2050605	.4856314	1785.63

PRESSURE (PSIA)	OIL SATURATION (FRACTION)	OIL RECOVERY (FRACTION)	GAS RECOVERY (FRACTION)	GAS-OIL RATIO (SCF/STB)
529.00	.7473455	.2063817	.4948284	1830.77
519.00	.7462430	.2076756	.5040796	1872.23
509.00	.7445647	.2089452	.5133829	1910.34
499.00	.7429080	.2101936	.5227361	1945.03
489.00	.7412706	.2114231	.5321377	1976.44
479.00	.7396501	.2126362	.5415862	2004.63
469.00	.7380446	.2138349	.5510802	2029.65
459.00	.7364522	.2150212	.5606184	2051.55
449.00	.7348711	.2161969	.5701998	2070.40
439.00	.7333008	.2173628	.5794707	2090.50
429.00	.7317423	.2185174	.5886307	2109.50
419.00	.7301944	.2196623	.5978299	2125.53
409.00	.7286556	.2207990	.6070676	2138.74
399.00	.7271244	.2219290	.6163430	2149.00
389.00	.7255995	.2230537	.6256553	2156.36
379.00	.7240794	.2241747	.6350040	2160.82
369.00	.7225629	.2252933	.6443883	2162.37
359.00	.7210486	.2264111	.6538079	2161.01
349.00	.7195352	.2275294	.6632622	2156.73
339.00	.7180211	.2286498	.6727508	2149.51
329.00	.7165051	.2297738	.6822732	2139.35

PRESSURE (PSIA)	OIL SATURATION (FRACTION)	OIL RECOVERY (FRACTION)	GAS RECOVERY (FRACTION)	GAS-OIL RATIO (SCF/STB)
319.00	.7149857	.2309029	.6918291	2126.21
309.00	.7134613	.2320669	.7013492	2112.33
299.00	.7119302	.2332676	.7108313	2097.87
289.00	.7103907	.2344787	.7203437	2080.33
279.00	.7088411	.2357020	.7298860	2059.85
269.00	.7072797	.2369396	.7394580	2036.27
259.00	.7057044	.2381936	.7490597	2009.57
249.00	.7041131	.2394664	.7586909	1979.73
239.00	.7025034	.2407604	.7683515	1946.67
229.00	.7008729	.2420786	.7780415	1910.37
219.00	.6992202	.2434223	.7877611	1885.99
209.00	.6975587	.2447771	.7975131	1873.25
199.00	.6958866	.2461450	.8072976	1854.25
189.00	.6941996	.2475307	.8171139	1828.99
179.00	.6924928	.2489228	.8268535	1798.33
169.00	.6907609	.2503053	.8363717	1763.83
159.00	.6889984	.2517230	.8459211	1722.97
149.00	.6871988	.2531828	.8555016	1675.73
139.00	.6853547	.2546929	.8651133	1621.93
129.00	.6834574	.2562628	.8747563	1561.44
119.00	.6814964	.2579044	.8844308	1494.07

PRESSURE (PSIA)	OIL SATURATION (FRACTION)	OIL RECOVERY (FRACTION)	GAS RECOVERY (FRACTION)	GAS-OIL RATIO (SCF/STB)
109.00	.6794583	.2596320	.8941371	1419.60
99.00	.6773267	.2614639	.9038758	1337.78
89.00	.6750799	.2634240	.9136475	1248.3
79.00	.6726888	.2655441	.9234531	1150.83
69.00	.6701132	.2678688	.9332937	1044.88
59.00	.6672940	.2704628	.9431709	929.9

TABLE 7

ECONOMIC FACTORS

PRIMARY DEPLETION

Crude Price (after trucking charge)*, $/bbl.	6.10
Well Operating Cost, $/month	350
Operating Cost Escalation to 1982, %/year	5

* Crude price schedule is given in Tables 8 through 13.

TABLE 8

CRUDE OIL APPRAISAL - WASKADA - ALIDA BEDS

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD.
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA
WELL AND LOCATION :- 3-30-1-25 W1
APPRAISAL FOR :- OMEGA HYDROCARBONS LTD.
CO PARTICIPATION :- WORKING INTEREST 100.000%

ROYALTY BEFORE PAYOUT:- MAN. CROWN + 12.5%

PROJECT :- 274-0151
EFFECTIVE DATE :- JUL 1.1974
TRACT FACTOR :- 100.000 PCT
POOL RESERVES :- 53230 STB
PROD TO DATE :- 38162 STB
GROSS CAP COSTS:- 0 DOLLARS

	POOL OR TRACT SHARE					COMPANY SHARE								
YEAR	GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	PRODUCTION GROSS BARRELS	PRODUCTION NET BARRELS	COSTS OPERATING DOLLARS	COSTS CAPITAL DOLLARS	NET OPER. ANNUAL DOLLARS	REVENUE CUM DOLLARS	CASH FLOW UNDISC. DOLLARS	CASH FLOW PW 9 % DOLLARS	CASH FLOW CUM PW DOLLARS
1974	1103	6.10	2000	0	1	1103	827	1750	0	2653	2653	2653	2596	2596
1975	2324	7.15	5040	0	1	2324	1743	4410	0	6577	9230	6577	6032	8628
1976	1978	8.20	5292	0	1	1978	1483	4630	0	6197	15427	6197	5214	13842
1977	1721	8.65	5557	0	1	1721	1291	4852	0	5077	20504	5077	3919	17761
1978	1524	9.10	5834	0	1	1524	1143	5105	0	4242	24746	4242	3004	20765
1979	1367	9.55	6126	0	1	1367	1025	5360	0	3439	28185	3439	2234	22999
1980	1239	10.00	6432	0	1	1239	929	5628	0	2807	30992	2807	1673	24672
1981	1133	10.45	6754	0	1	1133	850	5910	0	2153	33145	2153	1177	25850
1982	1044	10.90	7092	0	1	1044	783	6205	0	1543	34688	1543	774	26624
1983	968	10.90	7092	0	1	968	726	6205	0	978	35666	978	450	27074
1984	667	10.90	5191	0	1	667	500	4542	0	453	36119	453	191	27265
SUBTOT	15068		62410	0		15068	11301	54509	0	36119		36119	27265	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	15068		62410	0		15068	11301	54509	0	36119		36119	27265	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	36119	36119	0	-0
9.000	27265	27265	0	0
10.000	26527	26527	0	0
12.000	25159	25159	0	0
15.000	23345	23345	0	0
20.000	20833	20833	0	0
25.000	18811	18811	0	0

CALCULATED COMPANY NET PARTICIPATION 67.160 PERCENT

TABLE 9

CRUDE OIL APPRAISAL - WASKADA - ALIDA BEDS

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD.
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA
WELL AND LOCATION :- 4-30-1-25 W1
APPRAISAL FOR :- OMEGA HYDROCARBONS LTD.
CO PARTICIPATION :- WORKING INTEREST 100.000%

ROYALTY BEFORE PAYOUT:- MAN. CROWN + 12.5%

PROJECT :- 274-0151
EFFECTIVE DATE :- JUL 1,1974
TRACT FACTOR :- 100.000 PCT
POOL RESERVES :- 52592 STB
PROD TO DATE :- 37548 STB
GROSS CAP COSTS:- 0 DOLLARS

POOL OR TRACT SHARE

COMPANY SHARE

YEAR	GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	PRODUCTION GROSS BARRELS	PRODUCTION NET BARRELS	COSTS OPERATING DOLLARS	COSTS CAPITAL DOLLARS	NET OPER. REVENUE ANNUAL DOLLARS	NET OPER. REVENUE CUM DOLLARS	CASH FLOW UNDISC. DOLLARS	CASH FLOW PW 9 % DOLLARS	CASH FLOW CUM PW DOLLARS
1974	1363	6.10	2000	0	1	1363	1022	1750	0	3583	3583	3583	3506	3506
1975	2718	7.15	5040	0	1	2718	2038	4410	0	8309	11891	8309	7620	11126
1976	2183	8.20	5292	0	1	2183	1637	4630	0	7200	19092	7200	6058	17184
1977	1824	8.65	5557	0	1	1824	1368	4352	0	5670	24762	5670	4377	21561
1978	1566	9.10	5834	0	1	1566	1175	5105	0	4505	29267	4505	3190	24751
1979	1373	9.55	6126	0	1	1373	1030	5360	0	3479	32745	3479	2260	27011
1980	1222	10.00	6432	0	1	1222	916	5628	0	2689	35435	2689	1603	28614
1981	1101	10.45	6754	0	1	1101	826	5910	0	1921	37356	1921	1051	29665
1982	1002	10.90	7092	0	1	1002	751	6205	0	1227	38583	1227	616	30280
1983	693	10.90	5293	0	1	693	520	4631	0	513	39096	513	236	30517
SUBTOT	15044		55420	0		15044	11283	48493	0	39096		39096	30517	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	15044		55420	0		15044	11283	48493	0	39096		39096	30517	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	39096	39096	0	-0
9.000	30517	30517	0	0
10.000	29782	29782	0	0
12.000	28414	28414	0	0
15.000	26580	26580	0	0
20.000	24004	24004	0	0
25.000	21896	21896	0	0

CALCULATED COMPANY NET PARTICIPATION 66.671 PERCENT

TABLE 10

CRUDE OIL APPRAISAL - WASKADA - ALIDA BEDS

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD.
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA
WELL AND LOCATION :- 5-30-1-25 W1
APPRAISAL FOR :- OMEGA HYDROCARBONS LTD.
CO PARTICIPATION :- WORKING INTEREST 100.000%

PROJECT :- 274-0151
EFFECTIVE DATE :- JUL 1.1974
TRACT FACTOR :- 100.000 PCT
POOL RESERVES :- 134890 STB
PROD TO DATE :- 82783 STB
GROSS CAP COSTS:- 0 DOLLARS

ROYALTY BEFORE PAYOUT:- MAN. CROWN + 12.5%

POOL OR TRACT SHARE | COMPANY SHARE

YEAR	GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	PRODUCTION GROSS BARRELS	PRODUCTION NET BARRELS	COSTS OPERATING DOLLARS	COSTS CAPITAL DOLLARS	NET OPER. REVENUE ANNUAL DOLLARS	NET OPER. REVENUE CUM DOLLARS	CASH FLOW UNDISC. DOLLARS	CASH FLOW PW 9 % DOLLARS	CASH FLOW CUM PW DOLLARS
1974	2875	6.10	2000	0	1	2875	2156	1750	0	8347	8347	8347	8167	8167
1975	5775	7.15	5040	0	1	5775	4331	4410	0	20176	28523	20176	18504	26671
1976	4672	8.20	5292	0	1	4672	3504	4630	0	18933	47456	18933	15930	42601
1977	3923	8.65	5557	0	1	3923	2942	4862	0	16457	63914	16457	12704	55305
1978	3382	9.10	5834	0	1	3382	2536	5105	0	14631	78545	14631	10362	65666
1979	2972	9.55	6126	0	1	2972	2229	5360	0	13027	91572	13027	8464	74130
1980	2650	10.00	6432	0	1	2650	1988	5628	0	11718	103290	11718	6985	81115
1981	2392	10.45	6754	0	1	2392	1794	5910	0	10449	113740	10449	5714	86829
1982	2179	10.90	7092	0	1	2179	1634	6205	0	9498	123237	9498	4765	91594
1983	2001	10.90	7092	0	1	2001	1501	6205	0	8360	131597	8360	3848	95442
1984	1851	10.90	7092	0	1	1851	1388	6205	0	7261	138858	7261	3066	98508
1985	1721	10.90	7092	0	1	1721	1291	6205	0	6317	145175	6317	2447	100955
1986	1608	10.90	7092	0	1	1608	1206	6205	0	5611	150786	5611	1994	102949
1987	1509	10.90	7092	0	1	1509	1132	6205	0	4884	155670	4884	1593	104541
1988	1422	10.90	7092	0	1	1422	1066	6205	0	4242	159912	4242	1269	105810
1989	1344	10.90	7092	0	1	1344	1008	6205	0	3670	163581	3670	1007	106817
1990	1274	10.90	7092	0	1	1274	955	6205	0	3248	166829	3248	818	107635
1991	1211	10.90	7092	0	1	1211	908	6205	0	2781	169610	2781	642	108278
1992	1154	10.90	7092	0	1	1154	866	6205	0	2359	171969	2359	500	108777
1993	1102	10.90	7092	0	1	1102	827	6205	0	1974	173943	1974	384	109161
1994	1055	10.90	7092	0	1	1055	791	6205	0	1622	175566	1622	289	109451
1995	1011	10.90	7092	0	1	1011	759	6205	0	1300	176866	1300	213	109663
1996	971	10.90	7092	0	1	971	729	6205	0	1003	177868	1003	151	109814
1997	934	10.90	7092	0	1	934	701	6205	0	728	178597	728	100	109914
1998	900	10.90	7092	0	1	900	675	6205	0	538	179135	538	68	109982
1999	219	10.90	1763	0	1	219	164	1543	0	96	179231	96	11	109993
SUBTOT	52107		165359	0		52107	39080	144689	0	179231		179231	109993	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	52107		165359	0		52107	39080	144689	0	179231		179231	109993	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	179231	179231	0	-0
9.000	109993	109993	0	0
10.000	105400	105400	0	0
12.000	97285	97285	0	0
15.000	87258	87258	0	0
20.000	74605	74605	0	0
25.000	65325	65325	0	0

CALCULATED COMPANY NET PARTICIPATION 64.587 PERCENT

TABLE 11

CRUDE OIL APPRAISAL - WASKADA ALIDA BEDS

EVALUATION BY :- D.S PETROLEUM CONSULTANTS LTD.
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA
WELL AND LOCATION :- 6-30-1-25 W1
APPRAISAL FOR :- OMEGA HYDROCARBONS LTD.
CO PARTICIPATION :- WORKING INTEREST 100.000%

ROYALTY BEFORE PAYOUT:- MAN. CROWN + 12.5%

PROJECT :- 274-0151
EFFECTIVE DATE :- JUL 1.1974
TRACT FACTOR :- 100.000 PCT
POOL RESERVES :- 85382 STB
PROD TO DATE :- 60860 STB
GROSS CAP COSTS:- 0 DOLLARS

POOL OR TRACT SHARE | COMPANY SHARE

YEAR	GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	PRODUCTION GROSS BARRELS	PRODUCTION NET BARRELS	COSTS OPERATING DOLLARS	COSTS CAPITAL DOLLARS	NET OPER. REVENUE ANNUAL DOLLARS	NET OPER. REVENUE CUM DOLLARS	CASH FLOW UNDISC. DOLLARS	CASH FLOW PW 9 % DOLLARS	CASH FLOW CUM PW DOLLARS
1974	2085	6.10	2000	0	1	2085	1564	1750	0	5990	5990	5990	5861	5861
1975	4007	7.15	5040	0	1	4007	3005	4410	0	13588	19578	13588	12462	18323
1976	3104	8.20	5292	0	1	3104	2328	4630	0	11697	31275	11697	9841	28165
1977	2535	8.65	5557	0	1	2535	1901	4862	0	9489	40764	9489	7324	35489
1978	2142	9.10	5834	0	1	2142	1607	5105	0	7781	48545	7781	5511	40999
1979	1855	9.55	6126	0	1	1855	1391	5360	0	6467	55012	6467	4201	45201
1980	1636	10.00	6432	0	1	1636	1227	5628	0	5400	60411	5400	3219	48420
1981	1463	10.45	6754	0	1	1463	1097	5910	0	4397	64809	4397	2405	50824
1982	1323	10.90	7092	0	1	1323	992	6205	0	3518	68327	3518	1765	52589
1983	1208	10.90	7092	0	1	1208	906	6205	0	2757	71084	2757	1269	53858
1984	1111	10.90	7092	0	1	1111	833	6205	0	2038	73122	2038	861	54719
1985	1028	10.90	7092	0	1	1028	771	6205	0	1426	74548	1426	552	55271
1986	957	10.90	7092	0	1	957	718	6205	0	899	75447	899	319	55591
1987	567	10.90	4438	0	1	567	425	3883	0	367	75814	367	120	55710
SUBTOT	25022		82932	0		25022	18767	72566	0	75814		75814	55710	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	25022		82932	0		25022	18767	72566	0	75814		75814	55710	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	75814	75814	0	-0
9.000	55710	55710	0	0
10.000	54101	54101	0	0
12.000	51146	51146	0	0
15.000	47281	47281	0	0
20.000	42027	42027	0	0
25.000	37875	37875	0	0

CALCULATED COMPANY NET PARTICIPATION 65.511 PERCENT

TABLE 12

CRUDE OIL APPRAISAL - WASKADA - ALIDA BEDS

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD.
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA
WELL AND LOCATION :- 11-30-1-25 W1
APPRAISAL FOR :- OMEGA HYDROCARBONS LTD.
CO PARTICIPATION :- WORKING INTEREST 100.000%

ROYALTY BEFORE PAYOUT:- FREEHOLD 20.000%

PROJECT :- 274-0151
EFFECTIVE DATE :- JUL 1,1974
TRACT FACTOR :- 100.000 PCT
POOL RESERVES :- 63162 STB
PROD TO DATE :- 31994 STB
GROSS CAP COSTS:- 0 DOLLARS

POOL OR TRACT SHARE | COMPANY SHARE

YEAR	GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	PRODUCTION GROSS BARRELS	PRODUCTION NET BARRELS	COSTS OPERATING DOLLARS	COSTS CAPITAL DOLLARS	NET OPER. REVENUE ANNUAL DOLLARS	NET OPER. REVENUE CUM DOLLARS	CASH FLOW UNDISC. DOLLARS	CASH FLOW PW 9 % DOLLARS	CASH FLOW CUM PW DOLLARS
1974	1768	6.10	2188	0	1	1768	1194	1750	0	4381	4381	4381	4287	4287
1975	3690	7.15	5512	0	1	3690	2491	4410	0	10904	15285	10904	10000	14287
1976	3107	8.20	5788	0	1	3107	2097	4630	0	10308	25593	10308	8673	22960
1977	2683	8.65	6078	0	1	2683	1811	4962	0	9024	34617	9024	6946	29925
1978	2341	9.10	6381	0	1	2341	1593	5105	0	7878	42495	7878	5579	35505
1979	2108	9.55	6700	0	1	2108	1423	5360	0	6805	49300	6805	4421	39926
1980	1904	10.00	7036	0	1	1904	1285	5628	0	5992	55293	5992	3572	43498
1981	1736	10.45	7387	0	1	1736	1172	5910	0	5162	60455	5162	2823	46321
1982	1595	10.90	7757	0	1	1595	1077	6205	0	4512	64967	4512	2264	48584
1983	1476	10.90	7757	0	1	1476	996	6205	0	3709	68676	3709	1707	50291
1984	1373	10.90	7757	0	1	1373	927	6205	0	3017	71693	3017	1274	51565
1985	1283	10.90	7757	0	1	1283	866	6205	0	2416	74109	2416	936	52501
1986	1205	10.90	7757	0	1	1205	813	6205	0	1967	76076	1967	699	53200
1987	1135	10.90	7757	0	1	1135	766	6205	0	1496	77572	1496	488	53688
1988	1073	10.90	7757	0	1	1073	724	6205	0	1076	78648	1076	322	54010
1989	1018	10.90	7757	0	1	1018	687	6205	0	700	79348	700	192	54202
1990	968	10.90	7757	0	1	968	653	6205	0	360	79708	360	91	54293
1991	687	10.90	5742	0	1	687	464	4593	0	68	79776	68	16	54309
SUBTOT	31168		122622	0		31168	21038	98897	0	79776		79776	54309	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	31168		122622	0		31168	21038	98897	0	79776		79776	54309	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	79776	79776	0	-0
9.000	54309	54309	0	0
10.000	52398	52398	0	0
12.000	48942	48942	0	0
15.000	44523	44523	0	0
20.000	38700	38700	0	0
25.000	34252	34252	0	0

CALCULATED COMPANY NET PARTICIPATION 60.363 PERCENT

TABLE 13

CRUDE OIL APPRAISAL - WASKADA - ALIDA BEDS

EVALUATION BY :- D+S PETROLEUM CONSULTANTS LTD.
COMPANY EVALUATED :- WASKADA OIL POOL . MANITOBA
WELL AND LOCATION :- 12-30-1-25 WI
APPRAISAL FOR :- OMEGA HYDROCARBONS LTD.
CO PARTICIPATION :- WORKING INTEREST 100.000%

PROJECT :- 274-0151
EFFECTIVE DATE :- JUL 1.1974
TRACT FACTOR :- 100.000 PCT
POOL RESERVES :- 69243 STB
PROD TO DATE :- 40171 STB
GROSS CAP COSTS:- 0 DOLLARS

ROYALTY BEFORE PAYOUT:- FREEHOLD 20.000%

POOL OR TRACT SHARE

COMPANY SHARE

YEAR	GROSS PRODN STB	OIL PRICE $/STB	OPER. COSTS DOLLARS	CAPITAL COSTS DOLLARS	NO. WELLS	PRODUCTION GROSS BARRELS	PRODUCTION NET BARRELS	COSTS OPERATING DOLLARS	COSTS CAPITAL DOLLARS	NET OPER. ANNUAL DOLLARS	REVENUE CUM DOLLARS	CASH FLOW UNDISC. DOLLARS	CASH FLOW PW 9 % DOLLARS	CASH FLOW CUM PW DOLLARS
1974	1981	6.10	2188	0	1	1981	1337	1750	0	5046	5046	5046	4938	4938
1975	3988	7.15	5512	0	1	3988	2692	4430	0	11967	17013	11967	10975	15913
1976	3233	8.20	5788	0	1	3233	2182	4630	0	10914	27927	10914	9183	25095
1977	2719	8.65	6078	0	1	2719	1835	4062	0	9210	37137	9210	7109	32205
1978	2346	9.10	6381	0	1	2346	1583	5105	0	7797	44934	7797	5521	37726
1979	2063	9.55	6700	0	1	2063	1393	5360	0	6547	51481	6547	4254	41980
1980	1841	10.00	7036	0	1	1841	1243	5628	0	5610	57091	5610	3344	45324
1981	1662	10.45	7387	0	1	1662	1122	5910	0	4694	61784	4694	2567	47890
1982	1515	10.90	7757	0	1	1515	1023	6205	0	3975	65760	3975	1994	49885
1983	1392	10.90	7757	0	1	1392	940	6205	0	3148	68908	3148	1449	51334
1984	1287	10.90	7757	0	1	1287	869	6205	0	2445	71353	2445	1032	52366
1985	1197	10.90	7757	0	1	1197	808	6205	0	1918	73271	1918	743	53109
1986	1119	10.90	7757	0	1	1119	755	6205	0	1388	74659	1388	493	53602
1987	1051	10.90	7757	0	1	1051	709	6205	0	922	75581	922	301	53903
1988	990	10.90	7757	0	1	990	668	6205	0	510	76091	510	153	54056
1989	688	10.90	5658	0	1	688	464	4526	0	140	76231	140	38	54094
SUBTOT	29072		107025	0		29072	19624	85620	0	76231		76231	54094	
REMAIN	0		0	0		0	0	0	0	0		0	0	
TOTAL	29072		107025	0		29072	19624	85620	0	76231		76231	54094	

DISCOUNT RATE PERCENT	PRESENT WORTH CASH FLOW	PRESENT WORTH NET REVENUE	DISCOUNTED CAP COSTS	SALVAGE ALLOWANCE
0.000	76231	76231	0	-0
9.000	54094	54094	0	0
10.000	52374	52374	0	0
12.000	49236	49236	0	0
15.000	45175	45175	0	0
20.000	39733	39733	0	0
25.000	35500	35500	0	0

CALCULATED COMPANY NET PARTICIPATION 60.044 PERCENT

TABLE 14

ECONOMIC FACTORS

WATERFLOOD

Crude Price (after trucking charge)*, $/bbl.	6.10
Pool Operating Cost, $/month	3,850
Water Handling Cost, cents/bbl.	2
Operating Cost Escalation to 1982, %/year	5

* Crude price schedule is given in Table 3.

TABLE 15

CAPITAL REQUIREMENTS

WASKADA ALIDA BEDS POOL

WATERFLOOD

Water Supply Well & High Volume Pump	$65,000
Water Treating and Injection Plant	$75,000
Injection Well Conversion	$40,000
High Pressure Injection Lines	$20,000
Sub-total	$200,000
Larger Pumping Units Following Response	$45,000
TOTAL	$245,000

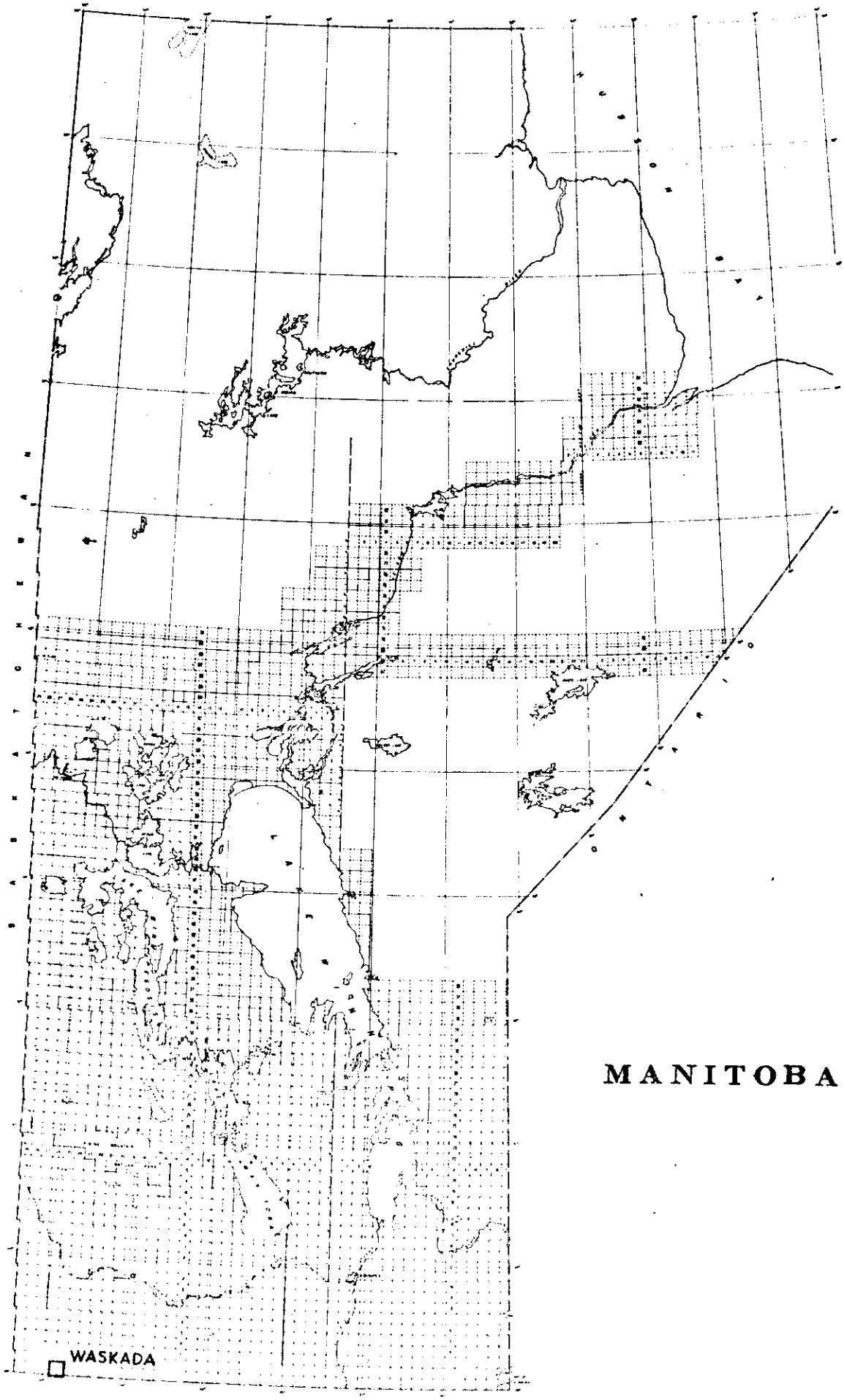


FIGURE 1

WASKADA

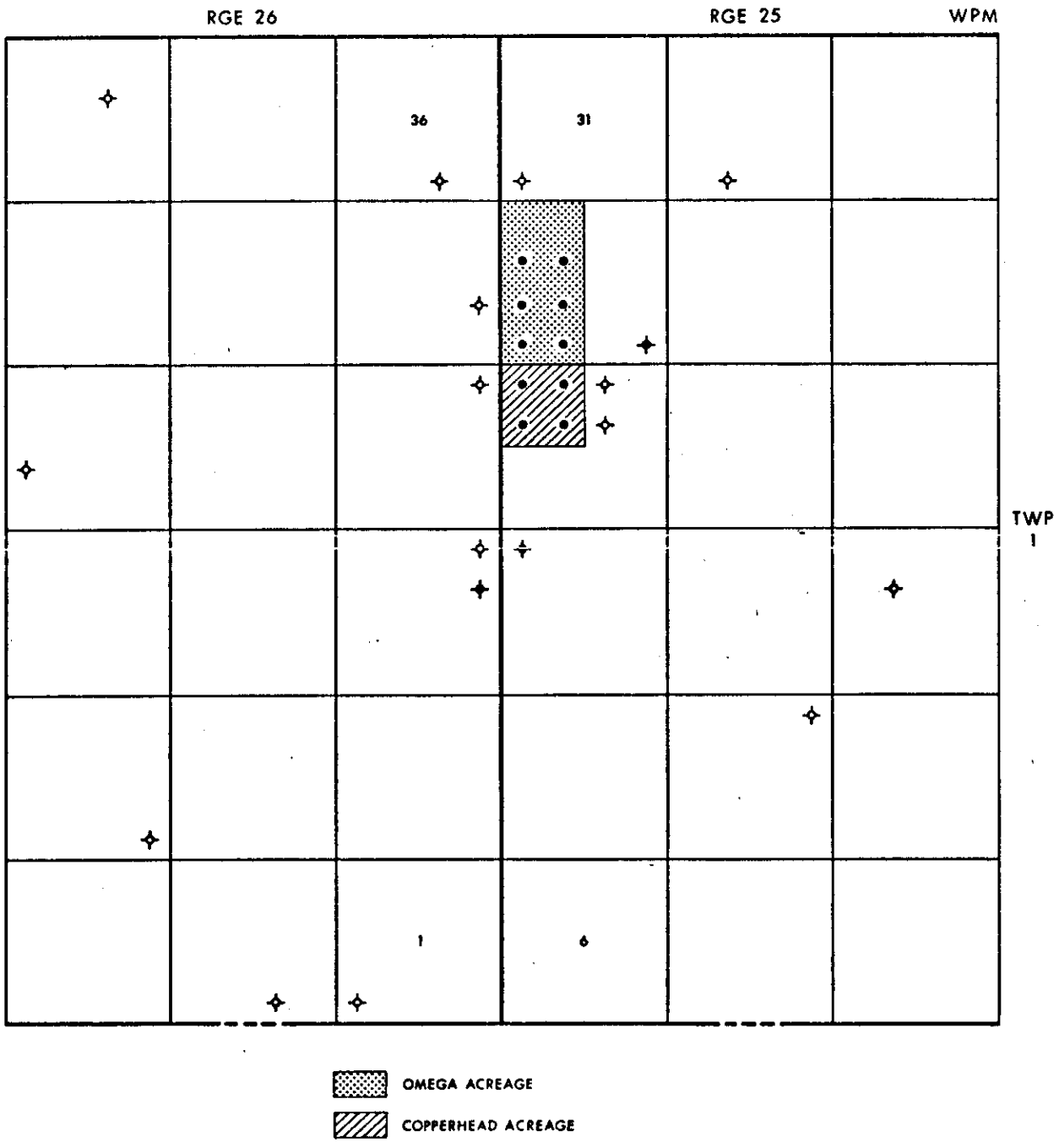
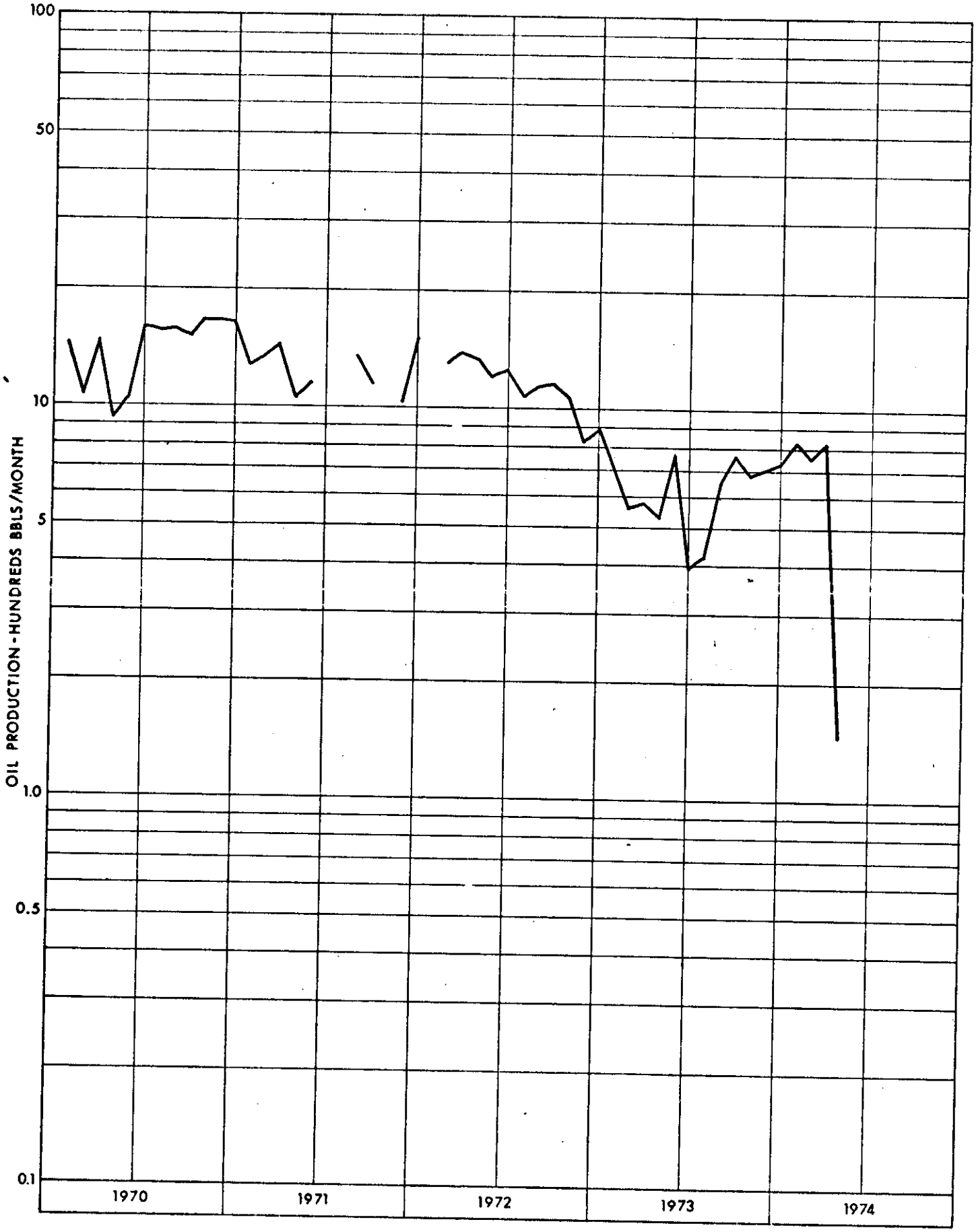


FIGURE 2

74-2151

11-19-1-25 WPM
PRODUCTION HISTORY
WASKADA



74-2151

FIGURE 3

12-19-1-25 WPM
PRODUCTION HISTORY
WASKADA

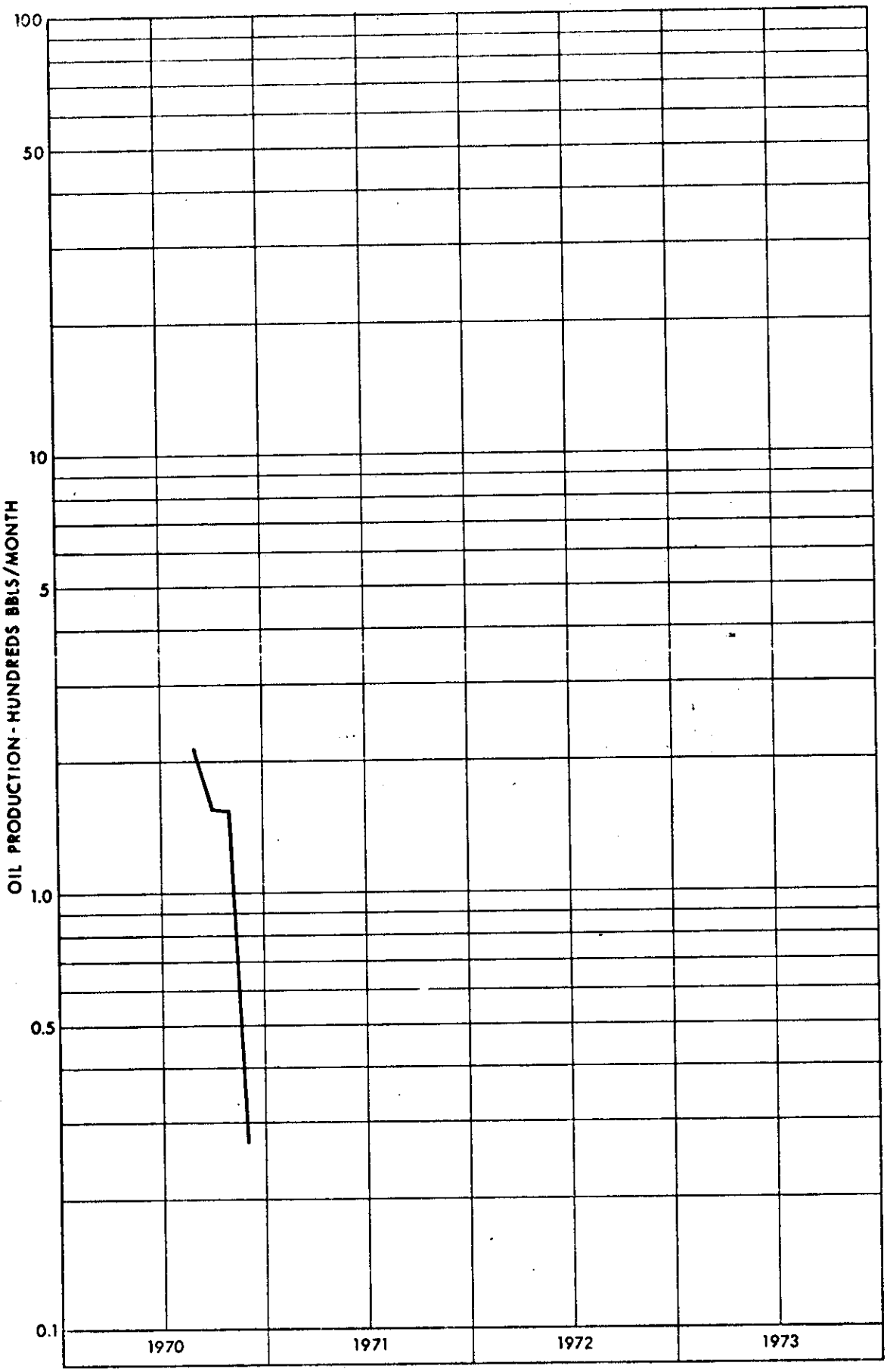


FIGURE 4

74-2151

13-19-1-25 WPM
PRODUCTION HISTORY
WASKADA

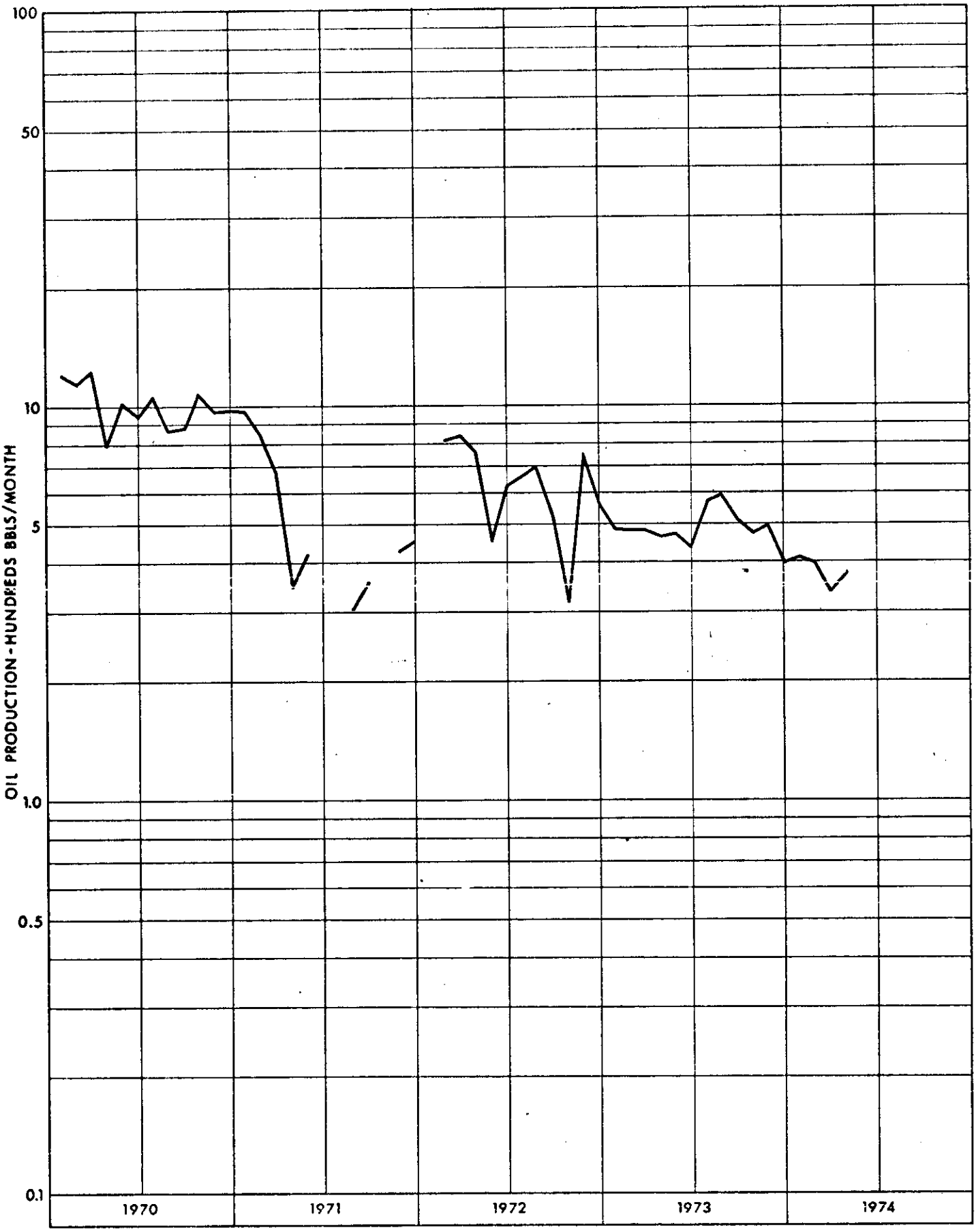


FIGURE 5

14-19-1-25 WPM
PRODUCTION HISTORY
WASKADA

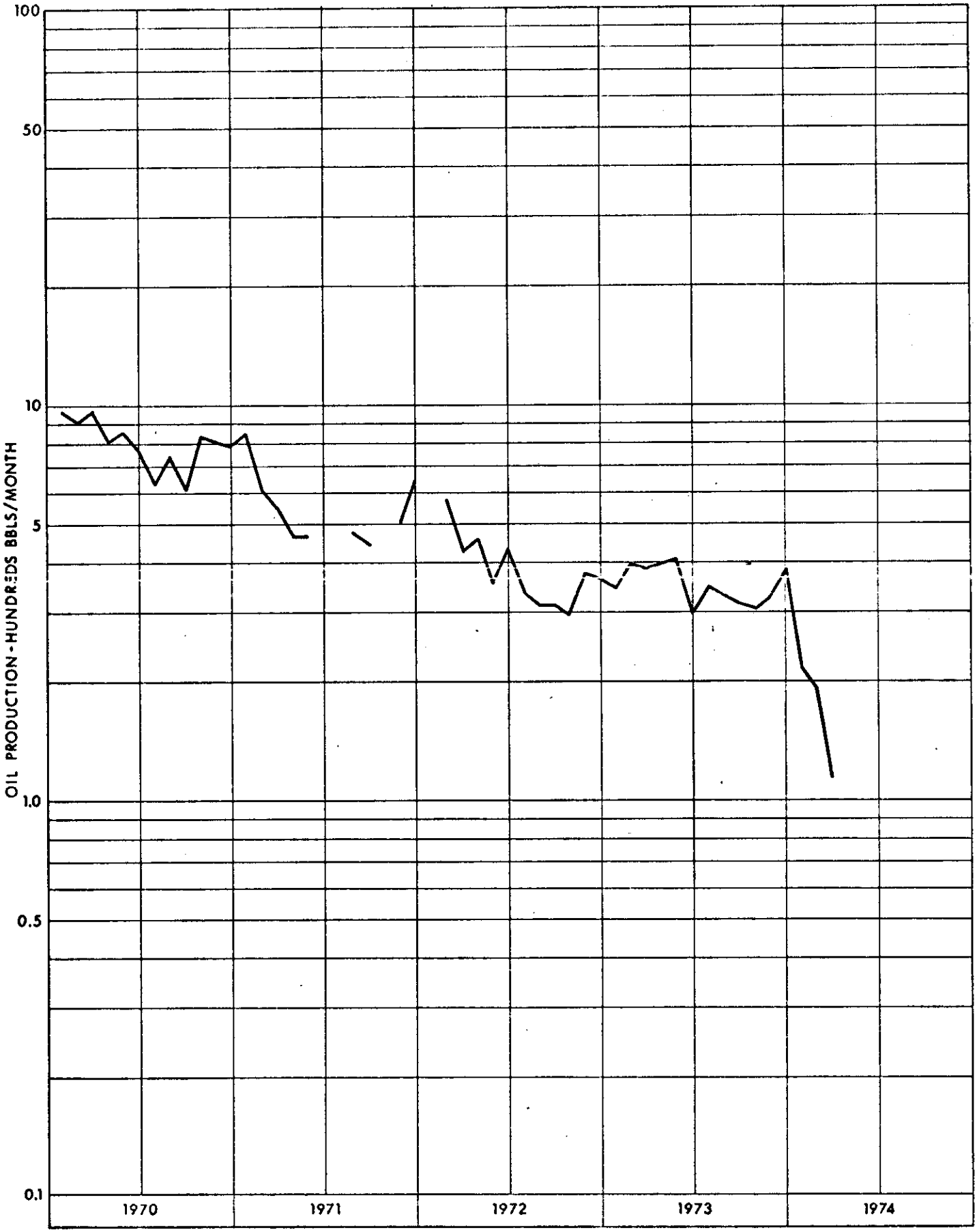


FIGURE 6

74-2151

3-30-1-25 WPM
PRODUCTION HISTORY
WASKADA

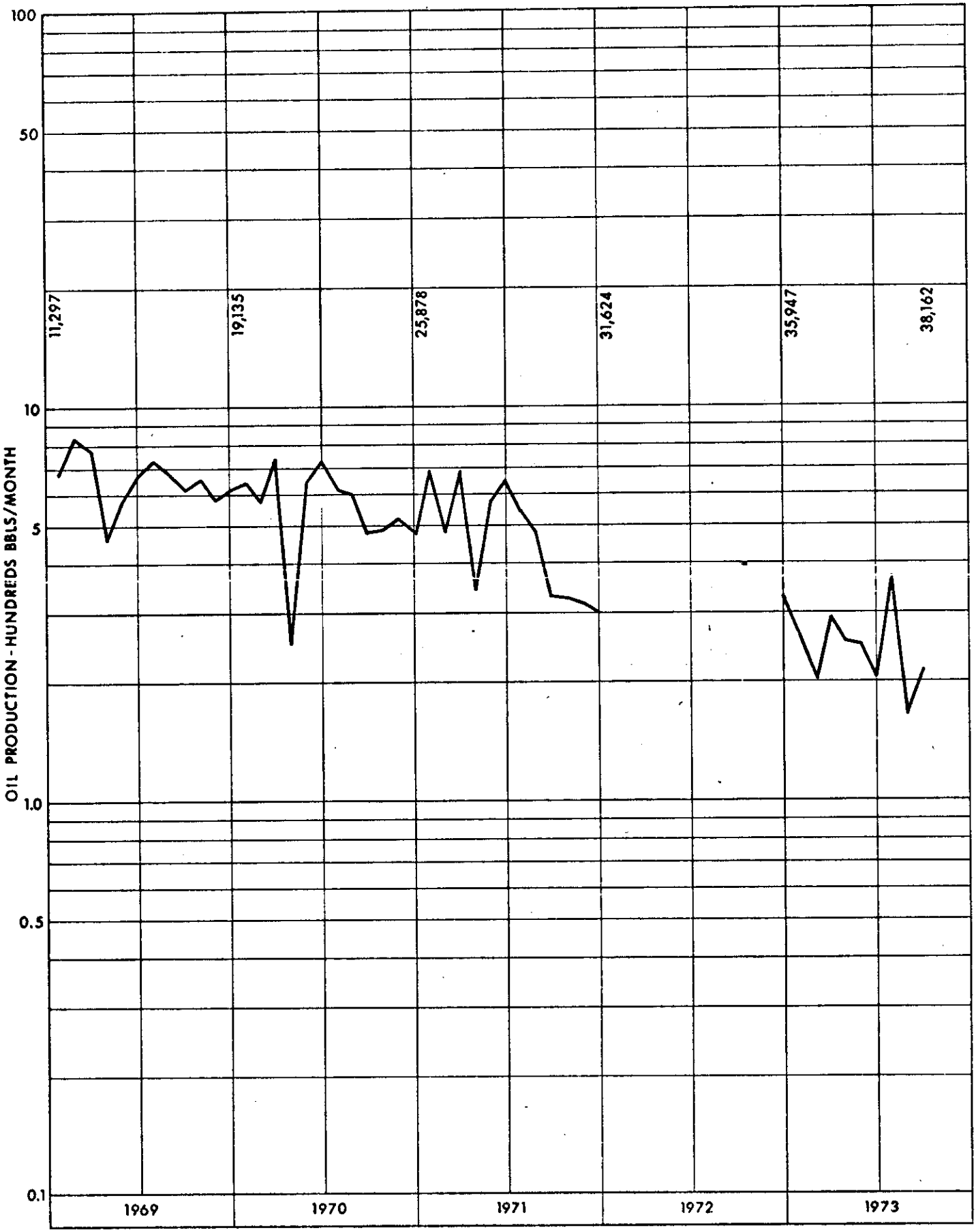


FIGURE 7

74-2151

4-30-1-25 WPM
PRODUCTION HISTORY
WASKADA

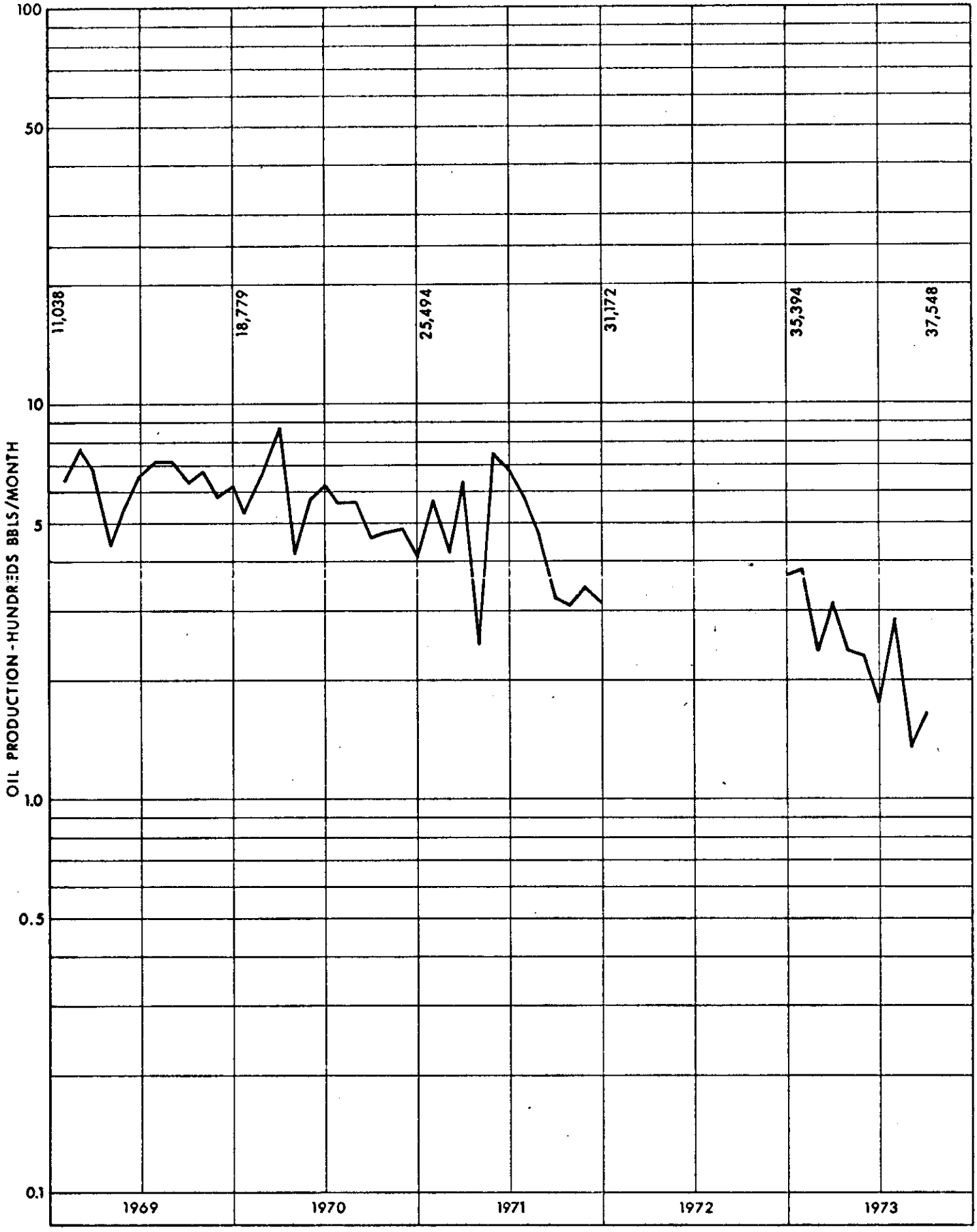


FIGURE 8

74-2151

5-30-1-25 WPM
PRODUCTION HISTORY
WASKADA

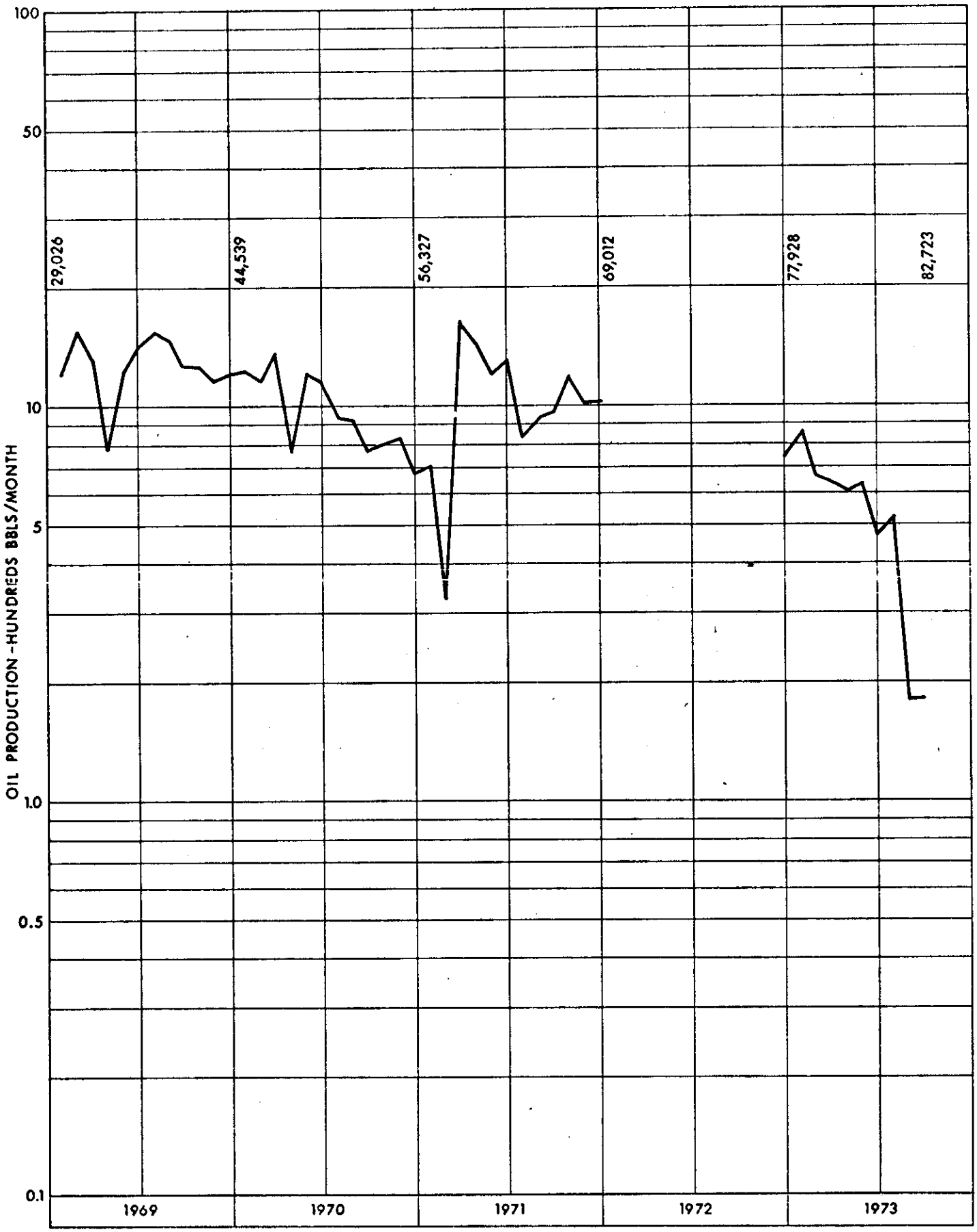


FIGURE 9

74-2151

6-30-1-25 WPM
PRODUCTION HISTORY
WASKADA

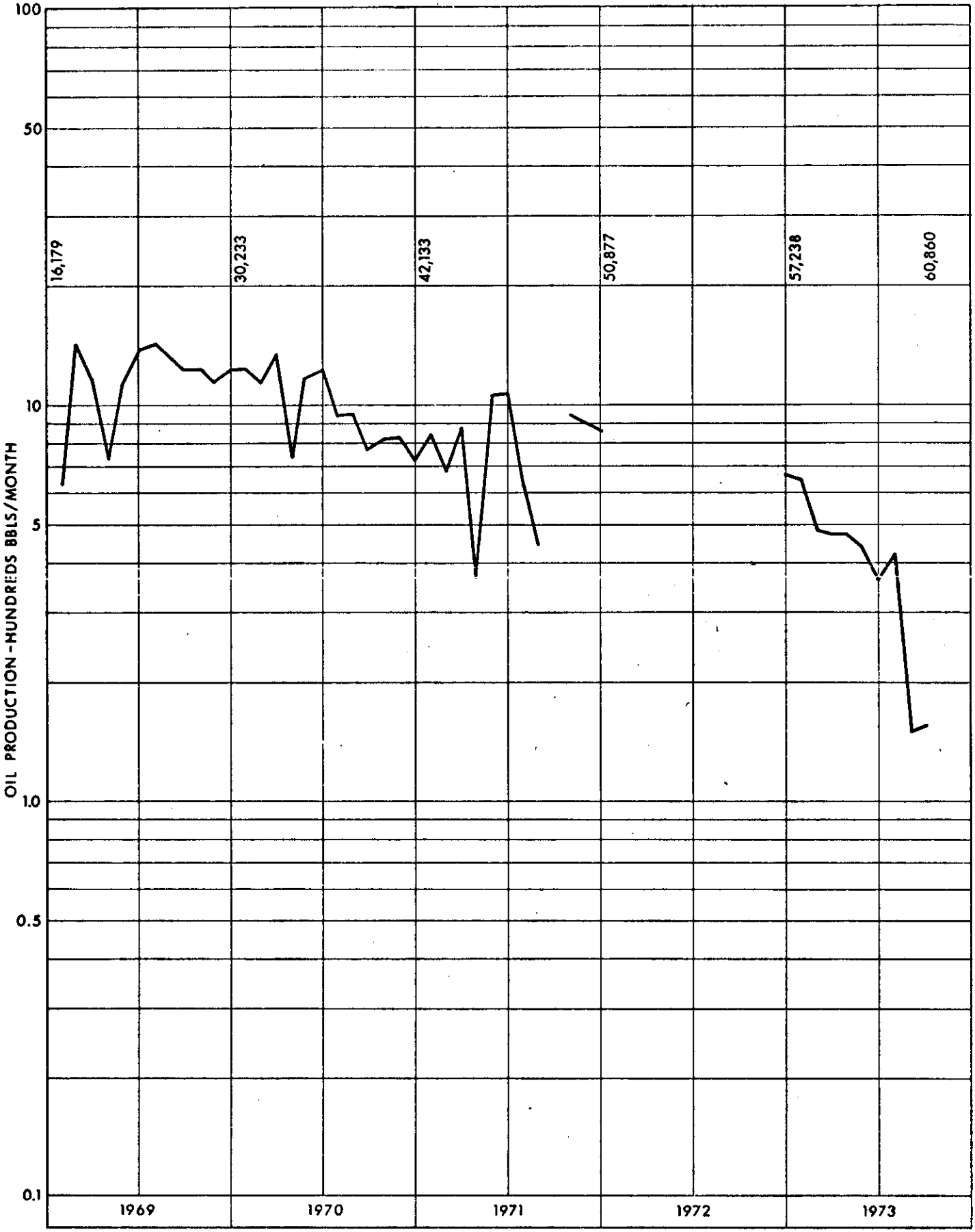
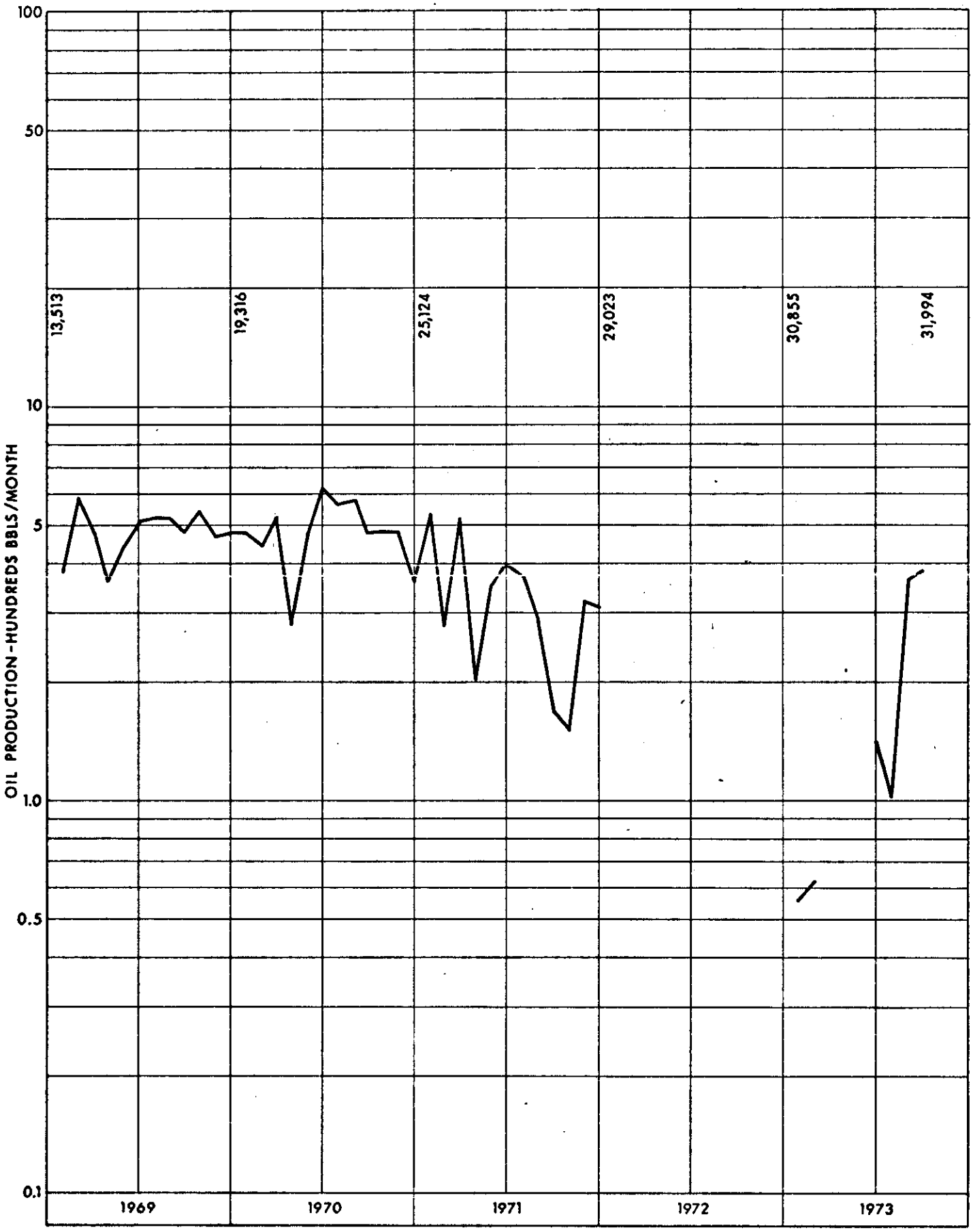


FIGURE 10

74-2151

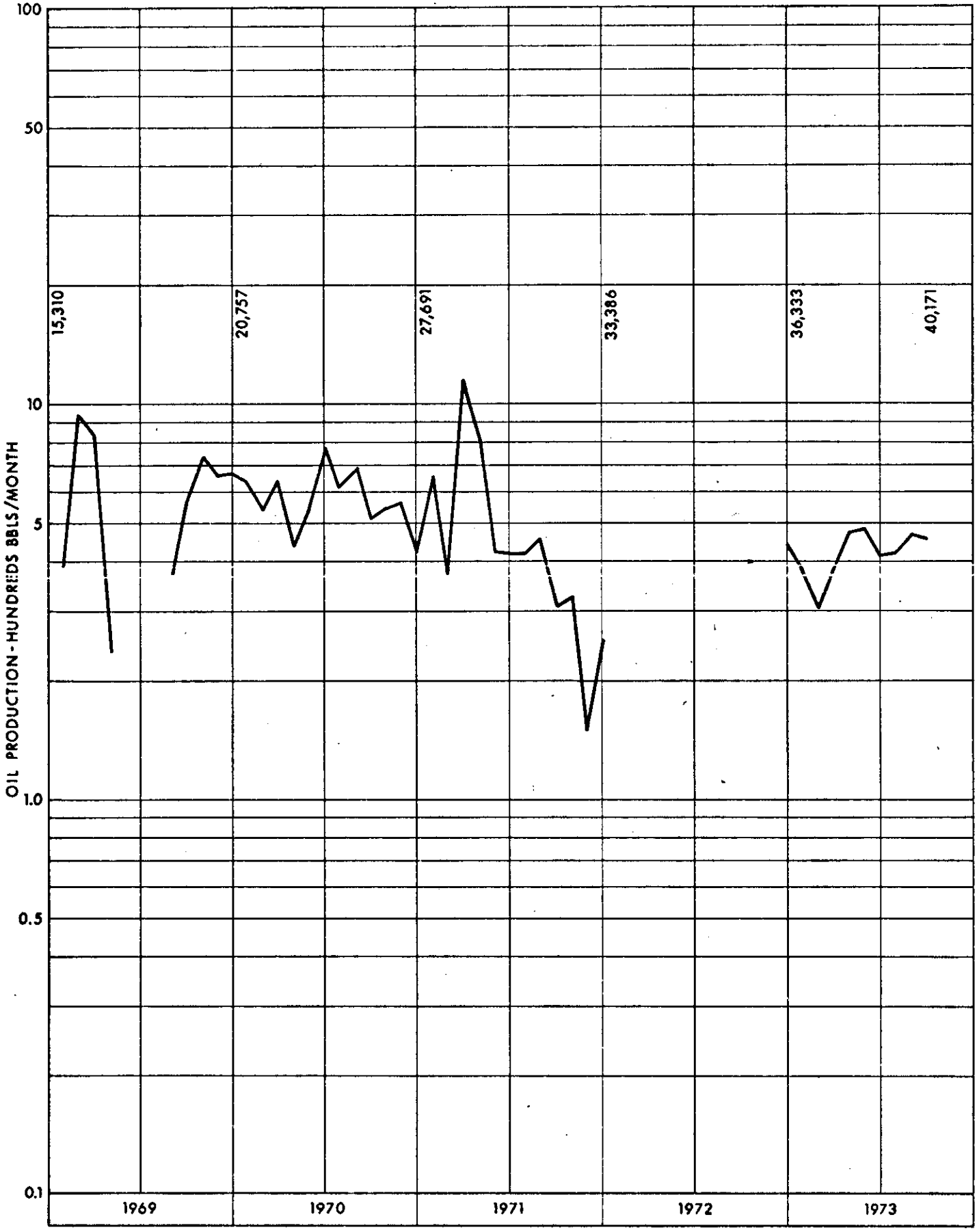
11-30-1-25 WPM
PRODUCTION HISTORY
WASKADA



74-2151

FIGURE 11

12-30-1-25 WPM
PRODUCTION HISTORY
WASKADA



74-2151

FIGURE 12

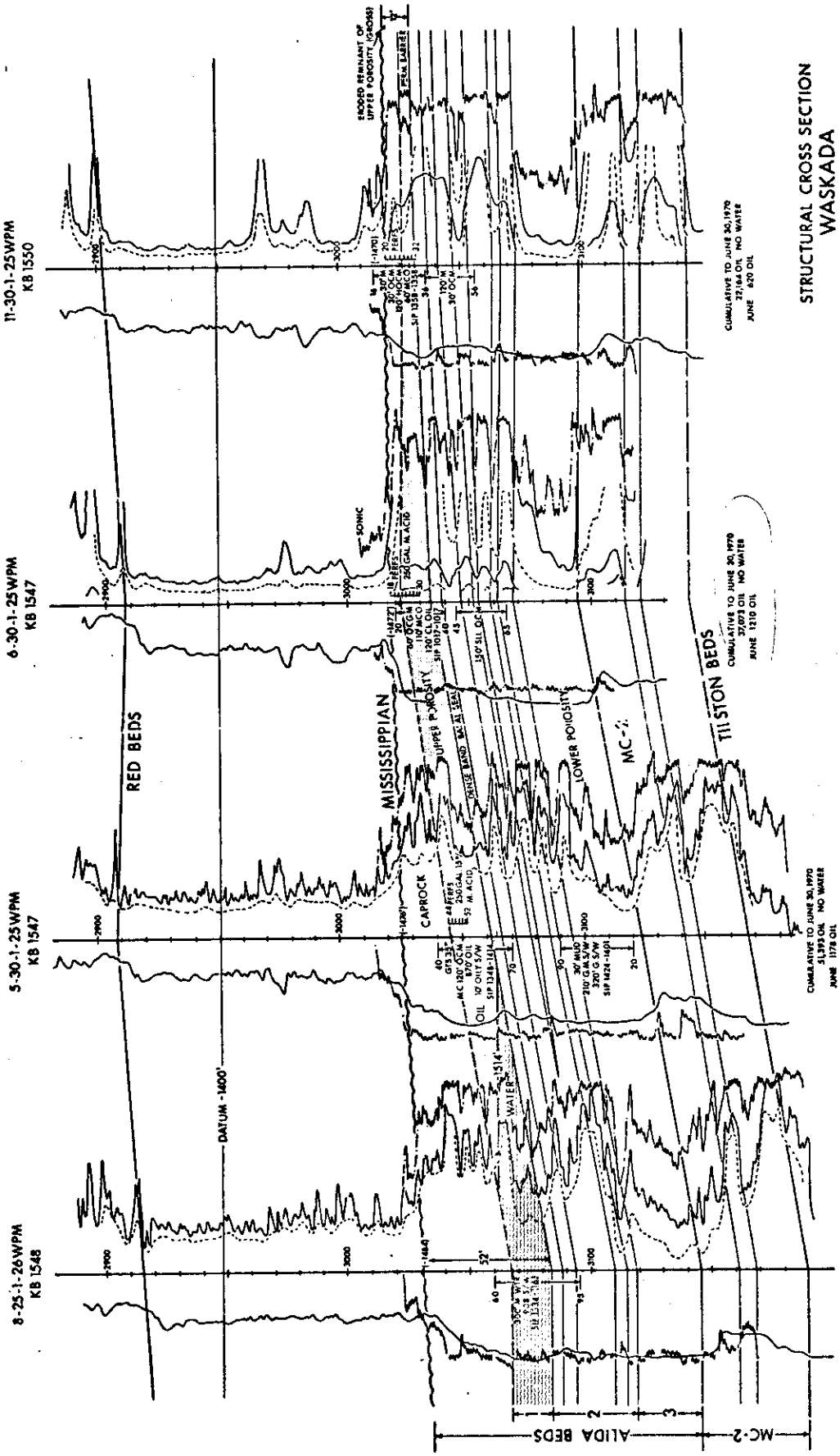

STRUCTURAL CROSS SECTION
WASKADA
11-30-1-25WPM
KB 1550
6-30-1-25WPM
KB 1547
5-30-1-25WPM
KB 1547
8-25-1-26WPM
KB 1548
RED BEDS
MISSISSIPPIAN
CAPROCK
UPPER POROSITY
LOWER POROSITY
MC-2
TILSTON BEDS
ALIDA BEDS
MC-2
DATUM -1400'
WATER
SONIC
ERODED REMNANT OF UPPER POROSITY
CUMULATIVE TO JUNE 30, 1970
22,164 OIL NO WATER
JUNE 820 OIL
CUMULATIVE TO JUNE 30, 1970
27,073 OIL NO WATER
JUNE 1210 OIL
CUMULATIVE TO JUNE 30, 1970
51,393 OIL NO WATER
JUNE 1178 OIL

FIGURE 13

NET PAY MAP
ALIDA BEDS POOL
WASKADA

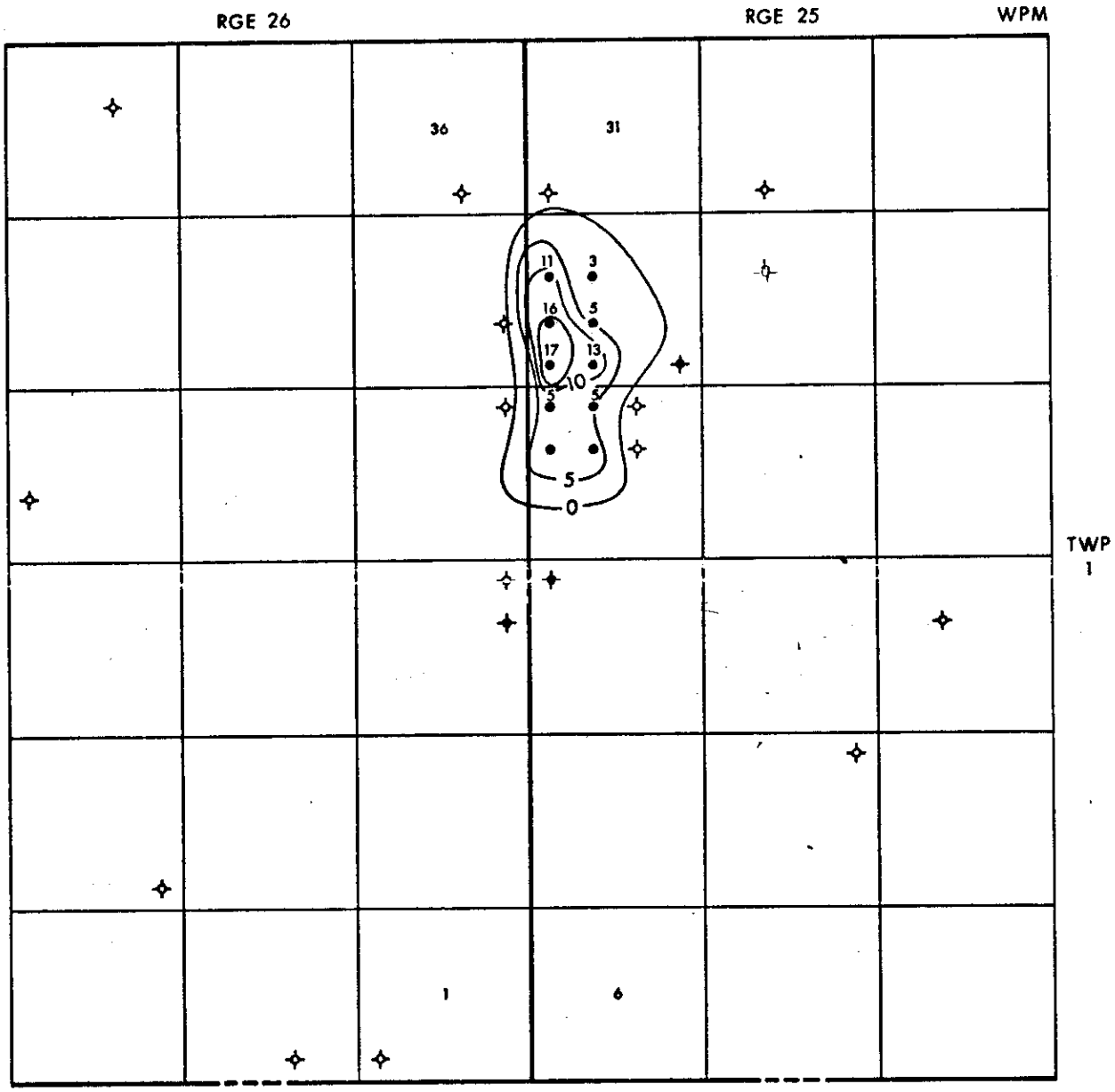


FIGURE 14

PERMEABILITY VS POROSITY
WASKADA

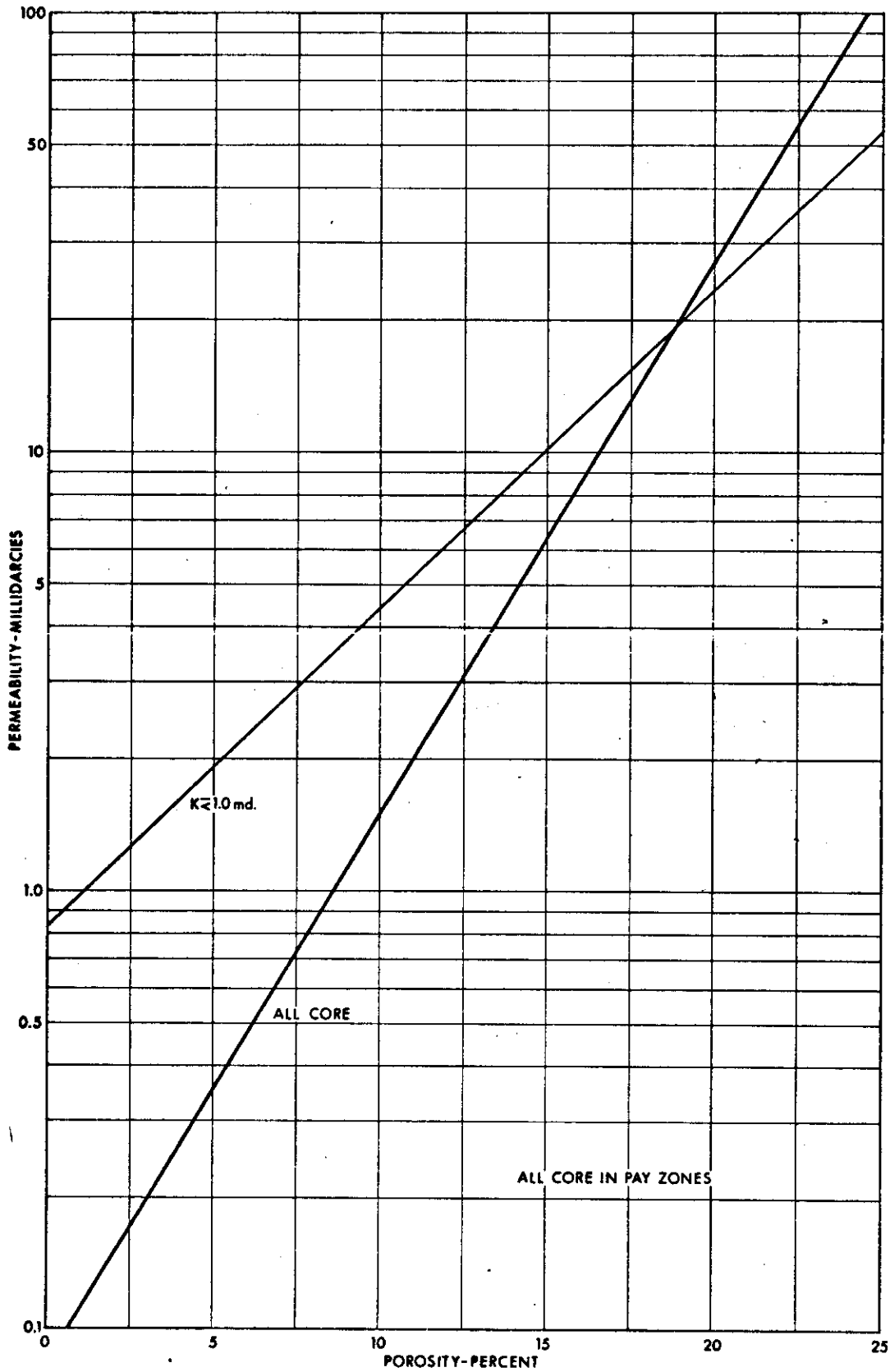


FIGURE 15

RELATIVE PERMEABILITY VS WATER SATURATION
WASKADA

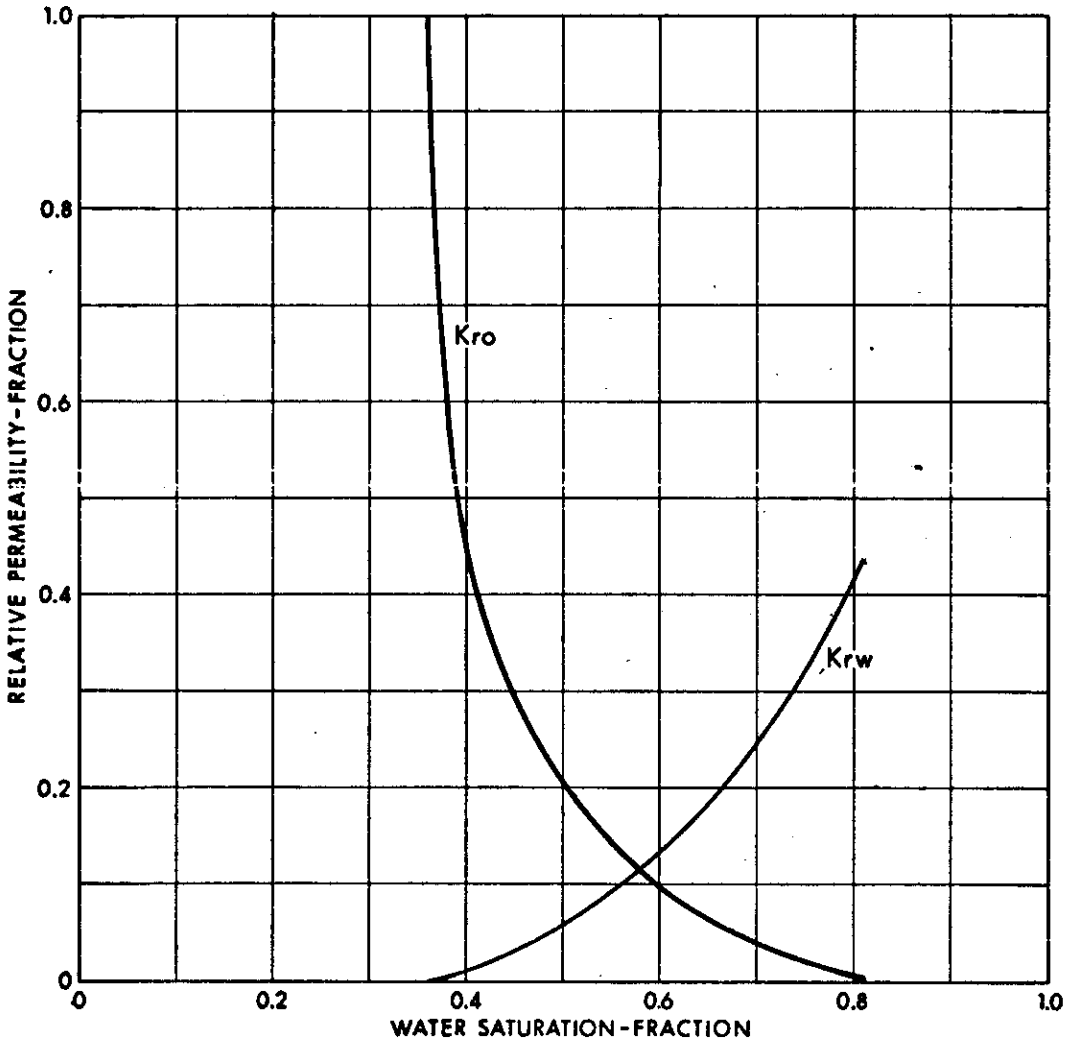


FIGURE 16

74-2151