PULP MILL STATUS REPORT

REGION X

PREPARED BY

the

WATER PERMITS SECTION

of the

WATER COMPLIANCE AND PERMITS BRANCH

of the

ENFORCEMENT DIVISION

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General

This status report for the pulp industry in Region X has been prepared in order to show what progress has been made in reducing pulp mill discharges for the period 1967 to the present (1975) as well as to show what further reductions will be made by July 1, 1977 in order to meet the requirements of the Water Pollution Control Act Amendments of 1972.

Table I summarizes the status of individual pulp mill discharges for the year 1967. This year was chosen as it coincides with the establishment of Federal and State water quality standards.

Table II summarizes the status of individual pulp mill discharges for the year 1972. This year was chosen as it coincides with the passage of the Water Pollution Control Act Amendments of 1972.

Table III shows current (1975) and projected discharges (July 1, 1977) for individual plants as taken from draft or issued NPDES permits. Also indicated are type and amount of production as well as treatment system employed.

Table IV summarizes discharge data for 1972 and 1967. The percentage reductions shown were figured using discharges of all pulp mills in 1967 and 1972. In actuality, the reductions shown for Oregon should be higher as two new pulp mills were added during the period while only one was closed. On the other hand, the reductions shown for Washington should be lower as one mill was closed and the pulping at another was discontinued during the period for the two years. The figures showing BOD discharged per ton of pulp produced probably best show what gains have been made by the respective States and the Region as a whole.

Table V summarizes discharge data for the present (1975) and 1972. The percentage reductions shown were figured using discharges of all pulp mills in 1972 and the present (1975). While a decrease in BOD discharged is shown for the Region, increases are shown for Alaska and Oregon. These may not be true increases but most likely are the results of more accurate data being available in 1975 over those originally collected in 1972. In addition, the reductions shown for Washington should be lower as one mill was closed during the two year period.

Table VI summarizes discharge data for July 1, 1977 and the present (1974). The 1977 numbers were arrived at using the guidelines or guidance. Totals for 1977 are known to be somewhat low as they do not allow for increases in production or for the building of new plants.

Table VII shows NPDES permit status as of 7/24/75 for the pulp mills in Region X.

Table VIII shows the treatment status for the pulp mills in the Region as well as showing how many mills are currently meeting BPCTCA.

Figure I shows the total pounds of BOD discharged per day for each State for the years 1967, 1972, 1975 and 1977.

Figure II shows the total pounds of BOD discharged per day as well as the pounds of BOD discharged per ton of pulp for the Region for the years 1967, 1972, 1975 and 1977.

TABLE I

1967 PULP MILL STATUS

ALASKA

Mill and Location	Production T/D	BOD #/Day	SS #/Day
Alaska Lumber & Pulp - Sitka	600 Sulfite pulp	274,000	101,500
Ketchikan Pulp - Ketchikan	628 Sulfite pulp	266,000	60,000
TOTALS	1,228 T/D Pulp	540,000	161,500

IDAHO

Potlatch Forest Industry - Lewiston	769 Kraft pulp	83,000	--

OREGON

Boise Cascade - Salem	220 Sulfite pulp	138,000	30,000
Boise Cascade - St. Helens	420 Kraft pulp	35,000	47,000
Coos Head - Empire	80 Sulfite pulp	14,500	10,300
Crown-Zellerbach - Lebanon	125 Sulfite pulp	9,700	1,300
Crown-Zellerbach - West Linn	220 Sulfite pulp		
	360 Groundwood pulp	148,000	9,000
Georgia Pacific - Toledo	1,050 Kraft pulp	23,000	43,000
International Paper - Gardiner	550 Kraft pulp	30,000	30,000
Menasha - North Bend	250 NSSC pulp	8,800	1,250
Publishers Paper - Newberg	180 Sulfite pulp	130,000	5,900
	350 Groundwood		
Publishers Paper - Oregon City	200 Sulfite pulp	130,000	40,000
	440 Groundwood		
Western Kraft - Albany	600 Kraft pulp	12,000	4,000
Weyerhaeuser - Springfield	1,150 Kraft pulp	3,000	5,200
TOTALS	6,195 T/D Pulp	682,000	226,950

TABLE I (con't.)

1967 PULP MILL STATUS

WASHINGTON

Mill and Location	Production T/D		BOD #/Day	SS #/Day
Boise Cascade - Steilacoom (West Tacoma Newsprint)	220	Groundwood	10,600	
Boise Cascade - Vancouver	181	Sulfite pulp	112,000	
Boise Cascade - Wallula	575	Kraft-NSSC pulp	18,300	
Crown Zellerbach - Camas	1,149	Sulfite, Kraft, Groundwood	436,000	
Crown Zellerbach - Port Angeles	304	Groundwood	24,000	9,291
Crown Zellerbach - Port Townsend	389	Kraft pulp	10,000	
Fibreboard - Port Angeles	191	GW-Sulfite	4,400	8,800
Fibreboard - Sumner	50	Paperboard	840	
Georgia Pacific - Bellingham	527	Sulfite pulp	278,000	24,200
Inland Empire - Millwood	37	Sulfite pulp	24,700	
	74	Groundwood		
ITT Rayonier - Hoquiam	516	Sulfite pulp	326,000	
ITT Rayonier - Port Angeles	467	Sulfite pulp	470,000	33,400
Keyes Fibre - Wenatchee	16	Paperboard	35	
Longview Fibre - Longview	1,600	Kraft pulp	117,000	
	80	Groundwood		
	175	NSSC		
St Regis - Tacoma	1,040	Kraft pulp	47,120	
Scott-Anacortes	138	Sulfite pulp	136,000	106,000
Scott - Everett	828	Sulfite pulp	820,000	146,000
Simpson-Lee - Everett	112	Kraft pulp	12,000	442,000
Weyerhaeuser - Cosmopolis	350	Sulfite pulp	98,000	
Weyerhaeuser - Everett (Kraft)	382	Kraft pulp	40,000	
Weyerhaeuser - Everett (Sulfite)	304	Sulfite pulp	320,000	134,000
Weyerhaeuser - Longview	810	Kraft, Sulfite NSSC	118,000	
TOTALS	10,515	T/D Pulp	3,422,995	

TABLE II (con't.)

1972 PULP MILL STATUS

WASHINGTON

Mill and Location	Production T/D	BOD #/Day	SS #/Day
Boise Cascade - Steilacoom	220 Groundwood pulp	9,690	11,200
Boise Cascade - Vancouver	---	27,600	9,400
Boise Cascade - Wallula	442 Kraft pulp 224 NSSC pulp	22,600	16,900
Crown Zellerbach - Camas	730 Kraft pulp 415 Sulfite pulp	172,000	46,300
Crown Zellerbach - Port Angeles	266 Groundwood	11,600	22,200
Crown Zellerbach - Port Townsend	405 Kraft pulp	15,800	6,960
Fibreboard - Sumner	58 Paperboard	800	1,350
Georgia Pacific - Bellingham	527 Sulfite pulp 45 NSSC pulp	132,000	43,100
Inland Empire - Millwood	66 Groundwood	5,560	849
ITT Rayonier - Hoquiam	504 Sulfite pulp	317,000	29,400
ITT Rayonier - Port Angeles	486 Sulfite pulp	537,000	38,800
Keyes Fibre - Wenatchee	30 Paperboard	67	250
Longview Fibre - Longview	1,600 Kraft pulp 250 NSSC pulp	107,000	64,000
St. Regis - Tacoma	887 Kraft pulp	61,100	13,300
Scott - Anacortes	140 Sulfite pulp	114,000	7,850
Scott - Everett	814 Sulfite pulp 22 Groundwood	576,000	27,600
Simpson-Lee - Everett	173 Kraft pulp	15,800	38,640
Weyerhaeuser - Cosmopolis	400 Sulfite pulp	104,000	8,830
Weyerhaeuser - Everett (Kraft)	410 Kraft pulp	23,200	19,900
Weyerhaeuser - Everett (Sulfite)	310 Sulfite pulp	278,000	16,300
Weyerhaeuser - Longview	331 Kraft pulp 290 Sulfite pulp 275 NSSC pulp	181,000	508,000
TOTALS	10,270 T/D pulp	2,711,817	931,129

TABLE II

1972 PULP MILL STATUS

ALASKA

Mill and Location	Production T/D	BOD #/Day	SS #/Day
Alaska Lumber & Pulp - Sitka	630 Sulfite pulp	274,000	102,000
Ketchikan Pulp - Ketchikan	725 Sulfite pulp	112,000	53,700
TOTALS	1,355 T/D Pulp	386,000	155,700

IDAHO

Potlatch Forest Industry - Lewiston	1,000 Kraft pulp	77,700	38,400

OREGON

American Can - Halsey	330 Kraft pulp	1,340	1,780
Boise Cascade - Salem	250 Sulfite pulp	8,010	3,710
Boise Cascade - St. Helens	800 Kraft pulp	24,800	22,700
Crown-Zellerbach - Lebanon	99 Sulfite pulp	5,280	2,945
Crown-Zellerbach-Wauna	705 Kraft pulp	71,100	20,700
	298 Groundwood		
Crown-Zellerbach-West Linn	180 Groundwood pulp	7,100	32,900
Georgia Pacific - Toledo	1,000 Kraft pulp	30,300	20,800
International Paper - Gardiner	600 Kraft pulp	25,500	20,500
Menasha - North Bend	150 NSSC pulp		
	100 Paperboard pulp	13,500	9,240
Publishers Paper - Newberg	210 Sulfite pulp	6,095	7,910
	290 Groundwood		
Publishers Paper - Oregon City	189 Sulfite pulp	8,460	6,980
	405 Groundwood		
Western Kraft - Albany	570 Kraft pulp		
	200 NSSC pulp	2,380	1,180
Weyerhaeuser - Springfield	1,155 Kraft pulp	2,660	6,660
TOTALS	7,531 T/D Pulp	206,525	158,005

KEY

Type and Pulp Production

S(Mg)	Magnesium based sulfite
$S(NH_3)$	Ammonia based sulfite
S(Ca)	Calcium based sulfite
S(Na)	Sode based sulfite
K	Kraft
BK	Bleached Kraft
G	Groundwood
N	Neutral sulfite semichemical (NSSC)
P	Paperboard

Present Treatment

P	Primary
CR	Chemical Recovery
S	Secondary

TABLE III

REGION X PULP MILL STATUS

Mill Name and Location	Type & Pulp Production (T/D)	Present Treatment	Flow (MGD)	Present Discharge BOD (#/Day)	Present Discharge SS (#/Day)	Discharge as of July 1, 1977 BOD (#/Day)	Discharge as of July 1, 1977 SS (#/Day)	Cost 10^6	Remarks
ALASKA									
Alaska Lumber & Pulp - Sitka	S(Mg) 638	CR,P	41.0	225,000	18,800	47,850	22,330		
Ketchikan Pulp - Ketchikan	S(Mg) 700	CR,P	42.0	185,000	23,300	52,500	24,500		
IDAHO									
Potlatch Corporation - Lewiston	BK 1,150	P,S	38.0	13,800	22,200	13,800	22,200		When river flow is less than 16,000 cfs, average BOD is limited to 10,400 lb/day
OREGON									
American Can - Halsey	BK 370	P,S	16.0	4,000	7,000	4,000	7,000		June 1 to Oct 31, maximum BOD is limited to 2,500 lb/d
Boise Cascade - St. Helens	BK & K 1,050	P,S	27.5	11,600	17,600	11,600	17,600		To city system
Boise Cascade - Salem	S(NH_3) 330	CR,P,S	19.2[a/]	11,500	7,000	11,500	7,000		June 1 to Oct 31 max BOD is limited to 8,000 lb/day
Crown Zellerbach - Lebanon	S(NH_3) 105	CR,P,S	4.0	3,800	4,000	3,800	4,000		June 1 to Oct 31, max. BOD limited to 3,000 lb/day
Crown Zellerbach - Wauna	BK, K & G 1200	P	35.1	88,000	21,500	11,000	18,600	9.1	
Crown Zellerbach - West Linn	G250	P,S	22.1[a/]	3,500	4,500	3,500	4,500		June 1 to Oct 31, max. BOD is limited to 3,500 lb/day
Georgia Pacific - Toledo	K 1,000 N 170	P	11.0	30,000	30,000	9,500	16,500		
International Paper - Gardiner	K 600	P	14.0	37,000	9,000	2,700[c/]	5,760[c/]		Permit expires 12/31/75
Menasha Corp. - North Bend	N 243, P 87	P	2.23	34,000	20,000	2,400	3,600		Until July 1, 1977 during the months of March 1 to Oct 31, the average BOD is limited to 17,000 lb/day and SS to 10,000 lb/day. After July 1, 1977, during these months, no discharge is allowed

a/ Data based on 1972 Status report

c/ Based on promulgated guidelines

Mill Name and Location	Type & Pulp Production (T/D)	Present Treatment	Flow (MGD)	Present Discharge BOD (#/Day)	Present Discharge SS (#/Day)	Discharge as of July 1, 1977 BOD (#/Day)	Discharge as of July 1, 1977 SS (#/Day)	Cost 10^6	Remarks
WASHINGTON (con't.)									
Inland Empire - Millwood	G 80	P	3.11	1,283	950	500[e]	930[e]		
ITT Rayonier - Hoquiam	S(Na) 640	CR,P	46.8	43,000(max)	25,615[d]	36,000	14,900		After July 1, 1977, when river flow is less than 2,000 cfs, avg load allowed is 30,300 lb/day
ITT Rayonier - Port Angeles	S(NH_3) 652	P	32.3	590,000	38,800[a]	39,000	13,000	28	Chemical recovery complete 12/1/75
Keyes Fibre - Wenatchee	P 30	P	1.0	70	250	70	125		
Longview Fibre - Longview	BK,K & N 2,300	P	80.2	80,000	37,000	9,000[g]	31,800[g]		
St. Regis - Tacoma	BK & K 1,000	P	38.0	61,100[a]	13,300[a]	9,400	10,000		
Scott Paper - Anacortes	S(NH_3) 151	None	8.5	143,000	4,500	5,300[e]	3,100[e]		
Scott Paper - Everett	S(NH_3) 850 G 22	CR,P(40%)	59.1	550,000	27,000	43,000[f]	26,000[f]	18	
Weyerhaeuser - Cosmopolis	S(Mg) 550	CR,P,S	34.6	37,300(max)	8,830[a]	25,600	11,200		
Weyerhaeuser (Kraft) - Everett	BK 510	P,S	25.0	5,600	7,000	5,600	5,100		
Weyerhaeuser (Sulfite) Everett	S(NH_3) 333	P	28.8	280,000	22,400	2,500	3,500		Converting to thermo mech pulping 1975.
Weyerhaeuser - Longview	BK & K 331,N 225 S (MgO) 290	CR,P	101.2	181,000[a]	508,000[a]	27,000	18,250		

a/ Data based on 1972 Status report

d/ Based on application data
e/ Calculated from guidance
f/ To be achieved by 8/1/78
g/ To be achieved by 11/1/77

Mill Name and Location	Type & Pulp Production (T/D)	Present Treatment	Flow (MGD)	Present Discharge BOD (#/Day)	Present Discharge SS (#/Day)	Discharge as of July 1, 1977 BOD (#/Day)	Discharge as of July 1, 1977 SS (#/Day)	Cost 10^6	Remarks
OREGON (con't.)									
Publishers Paper - Newberg	S(Mg) 250, G 380	CR,P,S	10.4[a]	10,000	7,500	10,000	7,500		June 1 to Oct 31, max BOD is limited to 6,[illegible] lb/day
Publishers Paper - Oregon City	S(Mg) 170, G 355	CR,P,S	30.9[a]	10,000	7,500	10,000	7,500		June 1 to Oct 31, max BOD is limited to 8,[illegible] lb/day
Western Kraft - Albany	K 610, N 250	P,S	6.2[a]	6,600	5,100	6,600	5,100		June 1 to Oct 31, max BOD is limited to 2,[illegible] lb/day
Weyerhaeuser - Springfield	K 1,300	P,S	30.0	5,700	11,960	4,000	11,960		June 1 to Oct 31, Avg BOD & avg SS are limited to 3,000 and 10,[illegible] lb/day, resp.
WASHINGTON									
Boise Cascade - Steilacoom	G 425	P	6.0	15,000	3,500	2,400	4,500		
Boise Cascade - Vancouver	---	P	15.0	10,500[d]	5,700[d]	3,300	5,500		
Boise Cascade - Wallula	N & K 825	P	10.0	6,600	10,000	6,600	10,000		
Crown Zellerbach - Camas	BK & K 730 S(Mg) 415	CR,P	105.0	172,000[a]	46,300[a]	31,000	22,000		
Crown Zellerbach - Port Angeles	G 374	P	14.0	18,000	9,500	2,100	3,900		
Crown Zellerbach - Port Townsend	K 428	P	15.4	25,000	6,900	2,400	5,200		
Fibreboard - Sumner	P 61	P,S	0.45	180	310	180	310		
Georgia Pacific - Bellingham	S(Ca) 620 N 130 P 58	CR,P	46.6	160,000	27,000	31,000[h]	27,000[h]		

a/ Data based on 1972 Status report
h/ To be achieved by 7/1/78
d. Based on application data

TABLE IV

PULP MILL STATUS SUMMARY(1967-1972)

	Alaska	Idaho	Oregon	Washington	Region X
Number of Plants (1967)	2	1	12	22	37
Total Pulping Production (1967) T/D	1,230	769	6,200	10,500	18,700
Waste Discharge (1967)					
BOD, #/Day	540,000	83,000	682,000	3,420,000	4,720,000
SS, #/Day	162,000	--	227,000	--	--
Number of Plants (1972)	2	1	13[a/]	21[b/]	37
Total Pulping Production (1972) T/D	1,355	1,000	7,530	10,300	20,200
Waste Discharge (1972)					
BOD, #/Day	386,000	77,700	206,000	2,710,000	3,380,000
SS, #/Day	156,000	38,400	158,000	931,000	1,280,000
Pollution Removed					
BOD, #/Day	154,000	5,200	476,000	710,000	1,340,000
SS, #/Day	6,000	--	69,000	--	--
Reduction					
BOD, %	28.6	6.3	69.9	20.7	28.4
SS, %	3.7	-	30.4	-	-
BOD Discharged/Ton Production (1967)	438	108	110	325	252
BOD Discharged/Ton Production (1972)	285	78	27	263	167

a/ American Can-Halsey, opened 1970, Crown-Zellerbach-Wauna, opened 1968, Coos Head Timber-Empire, closed 1970
b/ Fibreboard Corp - Port Angeles, closed 1970

TABLE V

PULP MILL STATUS SUMMARY (1972-1975)

	Alaska	Idaho	Oregon	Washington	Region X
Number of Plants (1972)	2	1	13	21	37
Total Pulping Production (1972) T/D	1,355	1,000	7,530	10,300	20,200
Waste Discharge (1972)					
BOD, #/Day	386,000	77,700	206,000	2,710,000	3,380,000
SS, #/Day	156,000	38,400	158,000	931,000	1,280,000
Number of Plants (1975)	2	1	13	20[a/]	36
Total Pulping Production (1975) T/D	1,338	1,150	8,720	12,030	23,200
Waste Discharge (1975)					
BOD, #/Day	410,000	13,800	255,700	2,380,000	3,060,000
SS, #/Day	42,100	22,200	152,700	802,650	1,020,000
Pollution Removed					
BOD, #/Day	(24,000)	63,900	(49,700)	330,000	320,000
SS, #/Day	113,900	16,200	5,300	128,000	260,000
Reduction					
BOD, percent	(6.2)	82.2	(24.1)	12.2	9.
SS, percent	73.0	42.2	3.4	13.8	20
BOD Discharged/Ton Production (1972)	285	78	27	263	167
BOD Discharged/Ton Production (1975)	306	12	29	198	132

a/ Simpson-Lee (Everett), closed 1973.

TABLE VI

PULP MILL STATUS SUMMARY (1975-1977)

	Alaska	Idaho	Oregon	Washington	Region X
Number of Plants (1975)	2	1	13	20	36
Total Pulping Production (1975) T/D	1,338	1,150	8,720	12,030	23,200
Waste Discharge (1975)					
BOD, #/Day	410,000	13,800	255,700	2,380,000	3,060,000
SS, #/Day	42,100	22,200	152,700	802,650	1,020,000
Number of Plants (1977)	2	1	13	20	36
Total Pulping Production (1977) T/D	1,338	1,150	8,720	12,030	23,200
Waste Discharge (1977)					
BOD, #/Day	100,350	13,800	90,600	281,950	487,000
SS, #/Day	46,830	22,200	116,600	216,300	402,000
Pollution Removed					
BOD, #/Day	309,650	-	165,100	2,098,050	2,573,000
SS, #/Day	(4,730)	-	36,100	586,350	618,000
Reduction					
BOD, percent	75.5	-	64.6	88.2	84.1
SS, percent	(11.2)	-	23.6	73.1	60.6
BOD Discharged/Ton Production (1975)	306	12	29	198	132
BOD Discharged/Ton Production (1977)	75	12	10	23	21

TABLE VII

PULP MILL PERMIT STATUS

	Number of Mills	Number Permitted to Date	Those Remaining
Alaska	2	2	-
Idaho	1	1	-
Oregon	13	13	-
Washington	20	19	Scott-Anacortes
REGION X	36	35	

TABLE VIII

PULP MILL TREATMENT STATUS

EXTERNAL TREATMENT

	Primary & Secondary	Primary Only	No Treatment	Mills Currently Meeting BPCTCA	
				Number	Percent
Alaska	-	2	-	-	0
Idaho	1	-	-	1	100
Oregon	9	4	-	8	62
Washington	3	16	1	3	15
REGION X	13	22	1	12	33

SULFITE MILL RECOVERY

	Number	Full Recovery	Partial Recovery	No Recovery
Alaska	2	2	0	-
Idaho	-	-	-	-
Oregon	4	4	-	-
Washington	8	4	1 (40%)[a/]	3[b/]
REGION X	14	10	1	3

a/ Scott Paper - Everett to have 80% recovery by August 1, 1978.

b/ Weyerhaeuser - Everett to convert mill to Thermo-mechanical by August, 1975
Scott Paper - Anacortes has no plans for recovery.
ITT Rayonier - Port Angeles to have full recovery by December 1, 1975.

FIGURE I

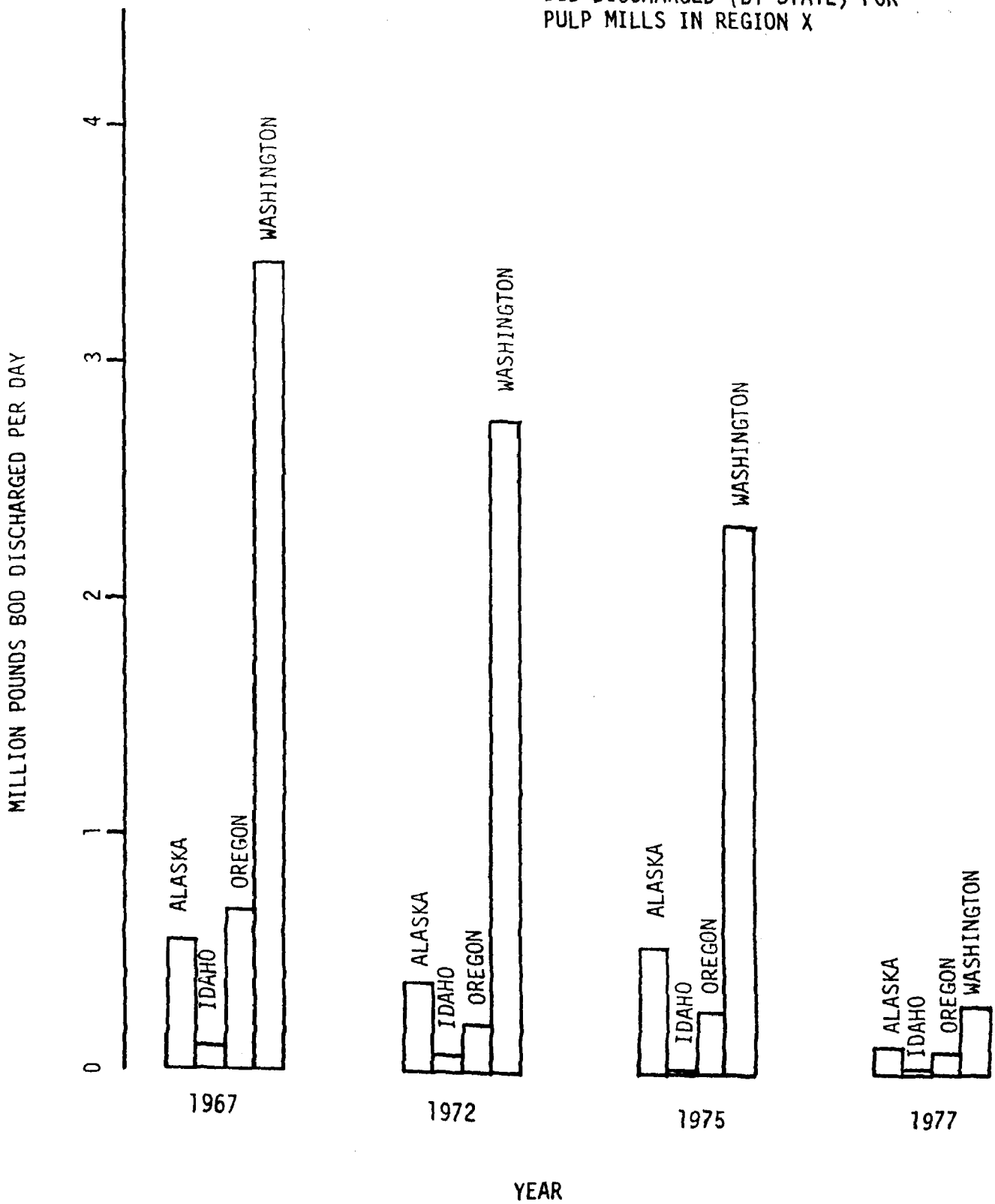
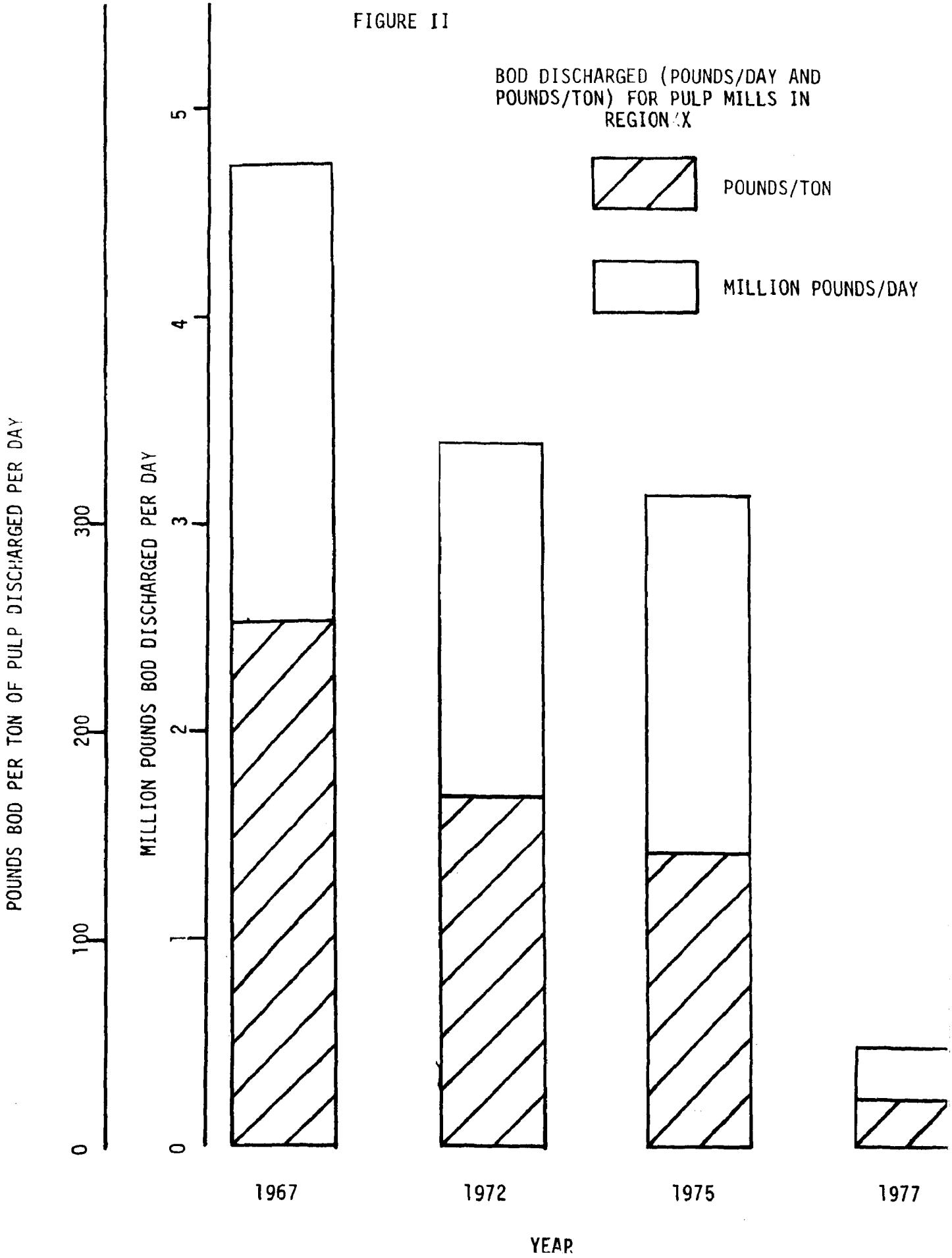

BOD DISCHARGED (BY STATE) FOR
PULP MILLS IN REGION X
MILLION POUNDS BOD DISCHARGED PER DAY
0
1
2
3
4
ALASKA
IDAHO
OREGON
WASHINGTON
1967
1972
1975
1977
YEAR

FIGURE II


BOD DISCHARGED (POUNDS/DAY AND POUNDS/TON) FOR PULP MILLS IN REGION X
POUNDS/TON
MILLION POUNDS/DAY
POUNDS BOD PER TON OF PULP DISCHARGED PER DAY
0
100
200
300
MILLION POUNDS BOD DISCHARGED PER DAY
0
1
2
3
4
5
1967
1972
1975
1977
YEAR

ATTACHMENT A

PULP AND PAPER MILL

EFFLUENT GUIDANCE

EFFLUENT LIMITATION GUIDANCE

for

THE REFUSE ACT PERMIT PROGRAM

PULP AND PAPER INDUSTRY

June 9, 1972

GENERAL

This guidance for the establishment of effluent limitations for discharges in the Pulp and Paper industrial category sets forth numerical limitations based on the application of 'best practicable control technology currently available. Schedule A values reflect the Agency's best technical judgment of the effluent levels which can be achieved by the application of the highest level of control technology which is now considered 'practicable' and 'currently available' for the industry. Schedule A values are based on the totality of experience with the technology, including demonstration projects, pilot plants, and actual use, which demonstrates that it is technologically and economically reliable.

In every case of (i) new plants installing pollution abatement equipment and (ii) existing plants now beginning abatement programs, you should apply Schedule A values. In some cases, economic and social factors may affect the practicability of applying control techniques to achieve these values, and may require some modification of Schedule A values as to particular plants. These instances should be kept to an absolute minimum. Guidance on the economic and social factors which may require that you consider such modifications, as well as more detailed explanation of the engineering assumptions underlying the Schedule A values, will be provided at technical seminars to be conducted concerning each industrial category.

Schedule B values represent the minimum acceptable effluent levels for the Pulp and
less pollution reduction.
values may be applied where a discharger has, at the time the permit is issued, commenced and made substantial progress on an abatement program that will be completed within 24 months or less from the time the discharge permit is issued. If the plant also has extensive on-going pollution abatement programs in other areas such as air pollution the Regional Administrator may modify this 24 month period.

EFFLUENT LIMITS

1. Production Basis. The average permitted effluent level, in pounds per day, shall be computed by multiplying the maximum daily production, in air-dry tons, as determined at the time of application by the recommended effluent limitations contained herein.

2. Suspended Solids. Separate A and B Schedules for suspended solids also are provided. If it is determined that suspended solids levels can not be applied at this time to this facility, the permit shall still include the settleable solids limitation of "no detectable settleable solids" and the permittee instructed to monitor suspended solids in the discharge for a suitable period of time with the understanding that evaluation of these data by EPA could result in the application of a suspended solids limitation. In this instance, the exact wording of the permit shall be:

"a. The effluent shall contain no detectable settleable solids.

b. After an analysis of the suspended solids and other data provided by the permittee for a suitable period of time as determined by the Regional Administrator, the District Engineer may, in accordance with determination of the Regional Administrator, direct the permittee to reduce his discharge of suspended solids to appropriate levels from any or all discharge points covered by this permit. If such action is taken, a reasonable period of time, of at least six months, shall be given to accomplish appropriate reduction of suspended solids."

NOTE: This condition is only to be used for permits for the pulp and paper industry and then only for suspended solids. If it is used, be sure to include a suspended solids monitoring requirement in the monitoring and reporting condition. Any modification of the above condition will be included in the Manual of Permit Conditions.

3. Conditions for Application of BOD, Suspended Solids and Settleable Solids Limitations

a. BOD and Suspended Solids compliance will be based on 24-hour composites.

b. Grab samples shall be considered as a monitoring tool and as an indicator of treatment plant operations. Any grab sample, however, in excess of 150 mg/l for either five-day BOD or suspended solids shall not be permitted.

c. The permit will be considered to be violated if:

(1) the average of 24-hour composite samples collected over any 20 consecutive day operating period exceeds the permitted effluent limit for five-day BOD, or if specified suspended solids;

*(2) the five-day BOD level in any 24-hour composite sample exceeds by 50% the permitted effluent level;

*(3) in cases where suspended solids limitations are established, the suspended solids level in any 24-hour composite sample exceeds by 100% the permitte effluent level;

(4) there are any detectable settleable solids in any 24-hour composite sample.

*NOTES

(a) The levels specified above are to be treated as maximum variances where receiving water quality does not govern effluent quality. Where receiving water quality requires more stringent limits, the allowable variances should be adjusted accordingly.

(b) The allowed percent variances may be adjusted to reflect operations where the wastewater in the treatment facility may fall below 10° C. In these cases, however, the above maximum allowed variances shall still prevail.

4. Coliform. This is a significant parameter for mixtures of industrial wastewater and sewage and may be significant for industrial wastewater alone. Because of the complex sewering of most mills, the absence of sewage must be established by dye test, sampling and analysis for fecal coliform organisms. If sewage is present, the following effluent limit shall be imposed:

> "Organisms isolated in the fecal coliform test and associated with pathogens shall not exceed 1000 organisms per 100 ml."(1)
>
> (1) Where receiving waters are classified for shellfish harvesting or contact recreational sports, the effluent limits shall be reduced to comply with the established water quality criteria.

The sanitary significance of fecal coliform organisms in strictly industrial wastewater has not been positively established and thus monitoring is necessary. Especially where pulping is part of the production operation, monitoring of effluent fecal coliform shall be required.

5. Toxic Materials, Oil and Grease. These parameters should be considered to determine their significance on an individual basis. If they are determined to be significant, then the appropriate "Special Conditions" should be applied.

6. pH. The pH shall be maintained between 6.0 and 8.5 unless unusual receiving water conditions necessitate a variance (e.g., the natural pH is outside this range).

7. Other Limits. The following may be significant parameters depending on production and receiving water characteristics:

Color
Turbidity
Foam
Phenol
Ammonia
Sulfite Waste Liquor

When deemed necessary, effluent limits applied to these parameters shall consider receiving water quality and available technology.

RECOMMENDED EFFLUENT LIMITATIONS
PULP AND PAPER PROCESSING INDUSTRY

PRODUCTION PROCESS	LB. OF FIVE DAY BOD PER TON OF PRODUCT	
	Schedule A	Schedule B
I. KRAFT PULPING AND THE MANUFACTURE OF:		
Coarse Paper and Liner Board	5	6
Newsprint	5	8
Bleached & Unbleached Grades	9	10
Bleached Grades	11	12
II. SULFITE PULPING AND THE MANUFACTURE OF:		
Paper	35	40
Dissolving Pulp	60	80
III. NEUTRAL SULFITE SEMI-CHEMICAL	14	25
IV. GROUNDWOOD		
Unbleached	2.5	5
Bleached	4.5	6
V. DEINKING MILL	10	25
VI. PAPERBOARD (No Deinking)	3	5
VII. PAPER MANUFACTURE (From Purchased Pulp)		
Coarse	2	5
Fine (< 8% filled)	6	6
Book (> 8% filled)	3	6
Tissue	8	8

NOTES: (1) Groups I, II, III, and IV apply to integrated mills (combined pulping and papermaking operations).

(2) Groups V and VI refer to wastepaper processing plants.

RECOMMENDED EFFLUENT LIMITATIONS
PULP AND PAPER PROCESSING INDUSTRY

SECTION SS	LB. OF SUSPENDED SOLIDS PER TON OF PRODUCT Schedule A	Schedule B
KRAFT PULPING AND THE MANUFACTURE OF:		
Coarse Paper and Liner Board	5	5
Newsprint	6	6
Bleached & Unbleached Grades	10	10
Bleached Grades	10	10
SULFITE PULPING AND THE MANUFACTURE OF:		
Paper	20	20
Dissolving Pulp	20	20
NEUTRAL SULFITE SEMI-CHEMICAL	8	15
GROUNDWOOD		
Unbleached	5	9
Bleached	9	10
DEINKING MILL	12	15
PAPERBOARD (No Deinking)	3	5
PAPER MANUFACTURE (From Purchased Pulp)		
Coarse	3	5
Fine (< 8% filled)	7	8
Book (> 8% filled)	4	15
Tissue	6	6

NOTES: (1) Groups I, II, III, and IV apply to integrated mills (combined pulping and papermaking operations).

(2) Groups V and VI refer to wastepaper processing plants.

MONITORING.

1. Frequency. A daily sampling frequency shall be maintained for BOD_5, pH, and Suspended Solids and/or Settleable Solids, except when a lesser frequency is approved by the Administrator or his designee.

2. Supplemental Information.

   a. Total organic carbon and/or chemical oxygen demand analyses may be performed by the permittee from the same composite sample as the five-day BOD analyses and at a frequency approved by the Administrator or his designee.

   b. If there is a question as to the applicability of parameters listed below, then the permittee may be asked to submit a list of chemicals used as product additives (e.g., phenols) or for water conditioning (e.g., heavy metals). This list can then be used as an aid to establish, by mill, effluent limits and/or monitoring requirements.

Phenol
Color
Heavy Metals
Nutrients (N&P)
Total Dissolved Solids
Toxicity
Turbidity

RATIONALE USED IN THE DEVELOPMENT OF EFFLUENT LIMITATIONS

The following is a description of the rationale used in developing the effluent limits achievable using best practicable pollution control and treatment technology.

The following production process controls and treatment system were used as a model in developing the recommended effluent limitations for the Pulp and Paper Industry as contained in Schedule A:

1. Heat and/or chemical recovery from pulping liquors, efficient save-alls within the paper making process and a high degree of water reuse,

2. primary clarification,

3. biological oxidation using aerated lagoons or activated sludge,

4. secondary clarification,

5. disinfection, if necessary.

The system described above is a generalized model which is applicable to the entire industry. This system, however, should not be specified to a mill as "the way" to abate their pollution problem, but it can be used as an example. There are many variations which may be "tailored" to a mill to achieve the desired results.

The effluent limitations for BOD and suspended solids were based on concentrations of 30 mg/l and 35 mg/l, respectively, which are levels obtainable by a well designed and well operated system as described above. The BOD concentration level is readily achievable regardless of the influent concentration unless the wastewater contains an unusual or restrictive characteristic. Such characteristics were considered in development of effluent limits for some processes (e.g., deinking and sulfite pulping).

The treatment model for tissue mills, using purchased pulp, are based on an expected effluent quality from efficient physical-chemical treatment. The majority of the BOD in this wastewater is associated with fibrous materials and thus is amenable to this type of treatment. The application of biological oxidation to this wastewater would not significantly lower the effluent BOD. The wastewater is also nutrient deficient and, therefore, subsequent nutrient additions to support a biological system would result in an additional loading on the receiving water.

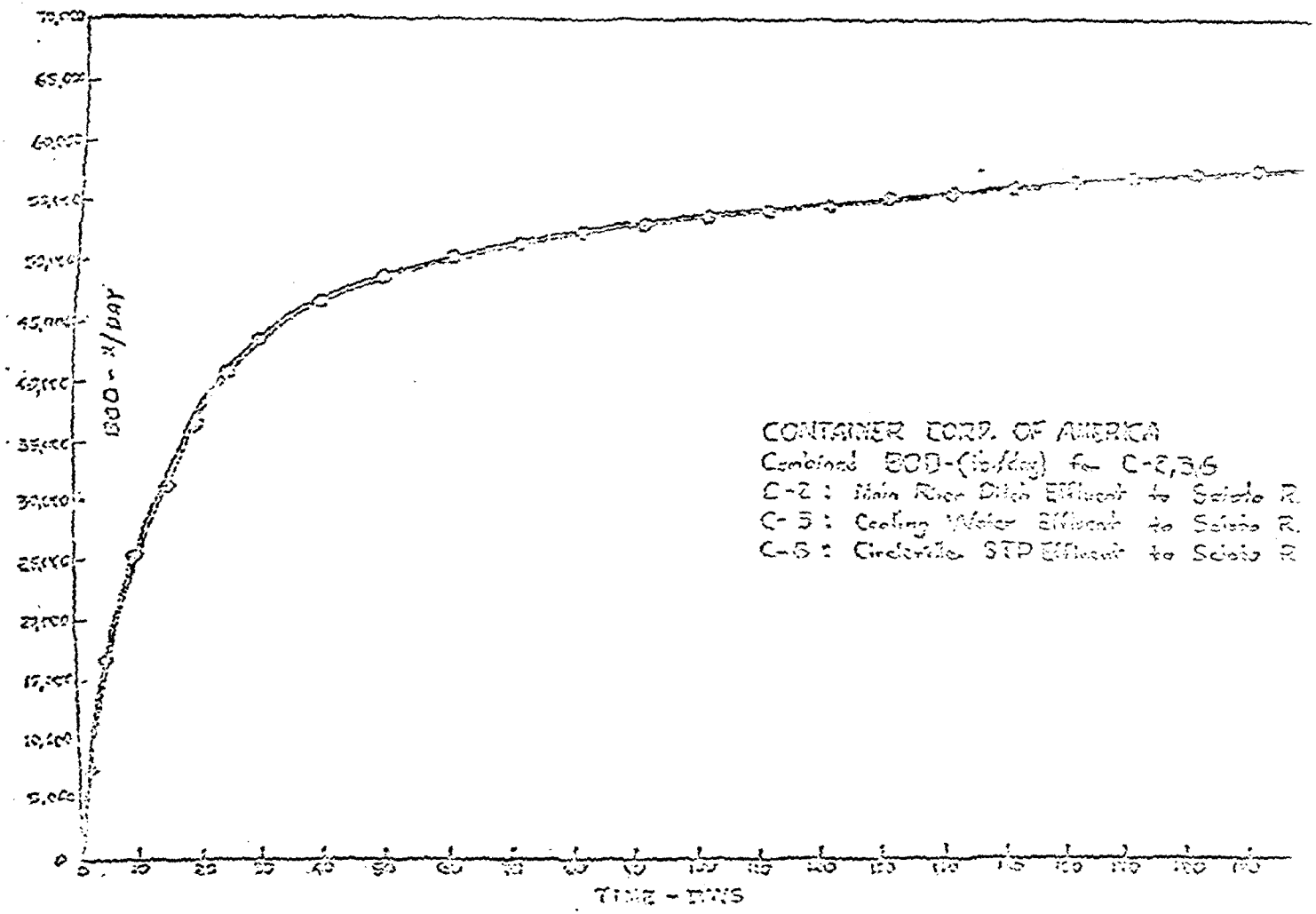
A unit pollutant load/unit of production was developed using a flow indicative of a production operation or groups of operations as described in Schedule A. The flow volumes were developed from data contained in (a) the "Survey of Water Utilization and Waste Control Practices in the Southern Pulp and Paper Industry"; (b) the "Industrial Waste Survey of the Pulp and Paper Industry (WAPORA)"; (c) specific data on mills involved in enforcement or R&M investigations. The effluent limitations are not additive but represent the allowable load based on the finished product. The "building block" approach was not used because of insufficient data.

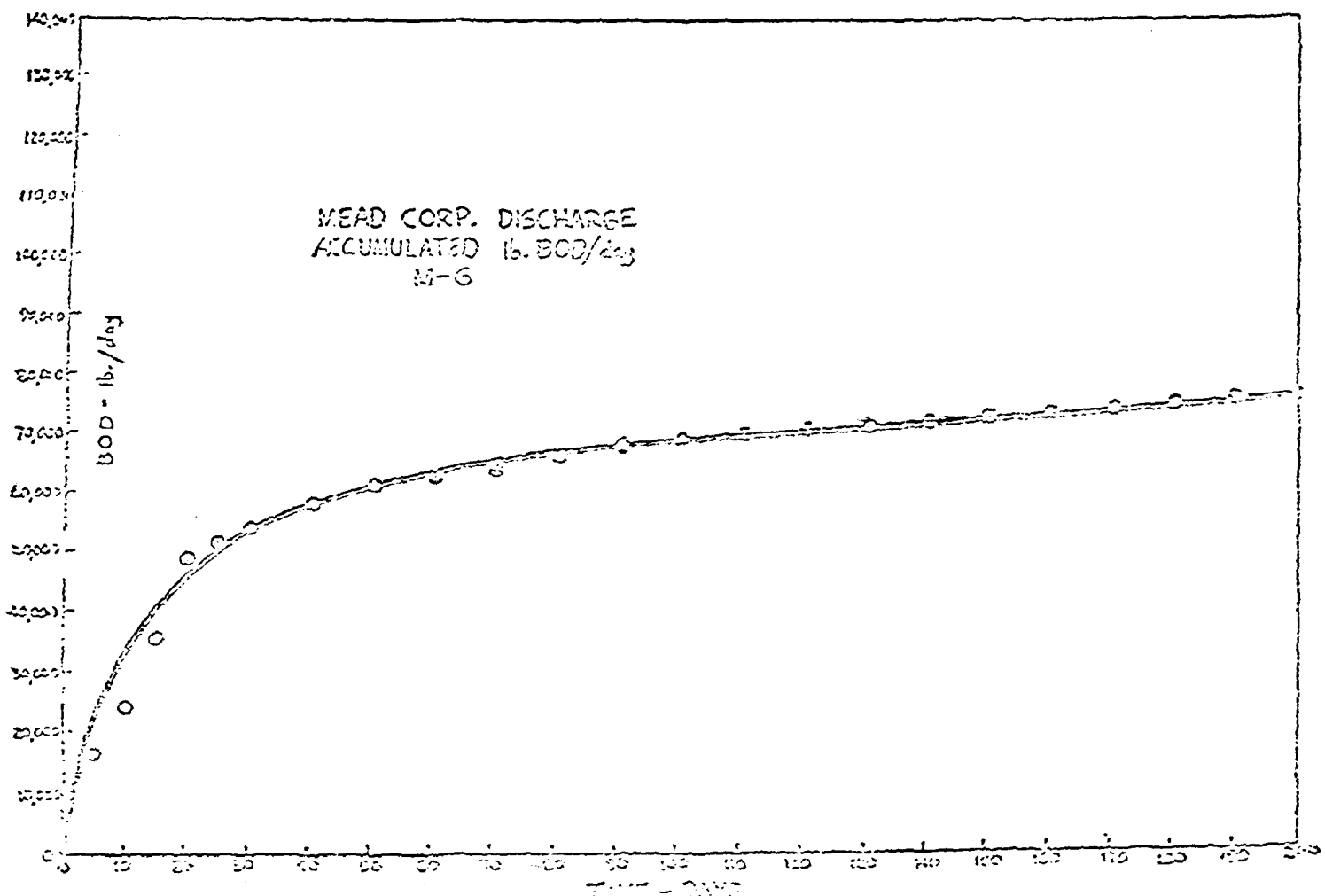
An examination of effluent data presented in the Industrial Waste Survey for the Pulp and Paper Industry indicates that 50% of the mills surveyed, having essentially the system described above, are meeting the requirements for BOD and suspended solids contained in Schedule A. All mills utilizing activated sludge are meeting the requirements in Schedule A. It should be emphasized that this represents only a small fraction of the mills in the industry. It does, however, demonstrate the practicality and achievability of the technology currently available and it represents a substantial precedent.

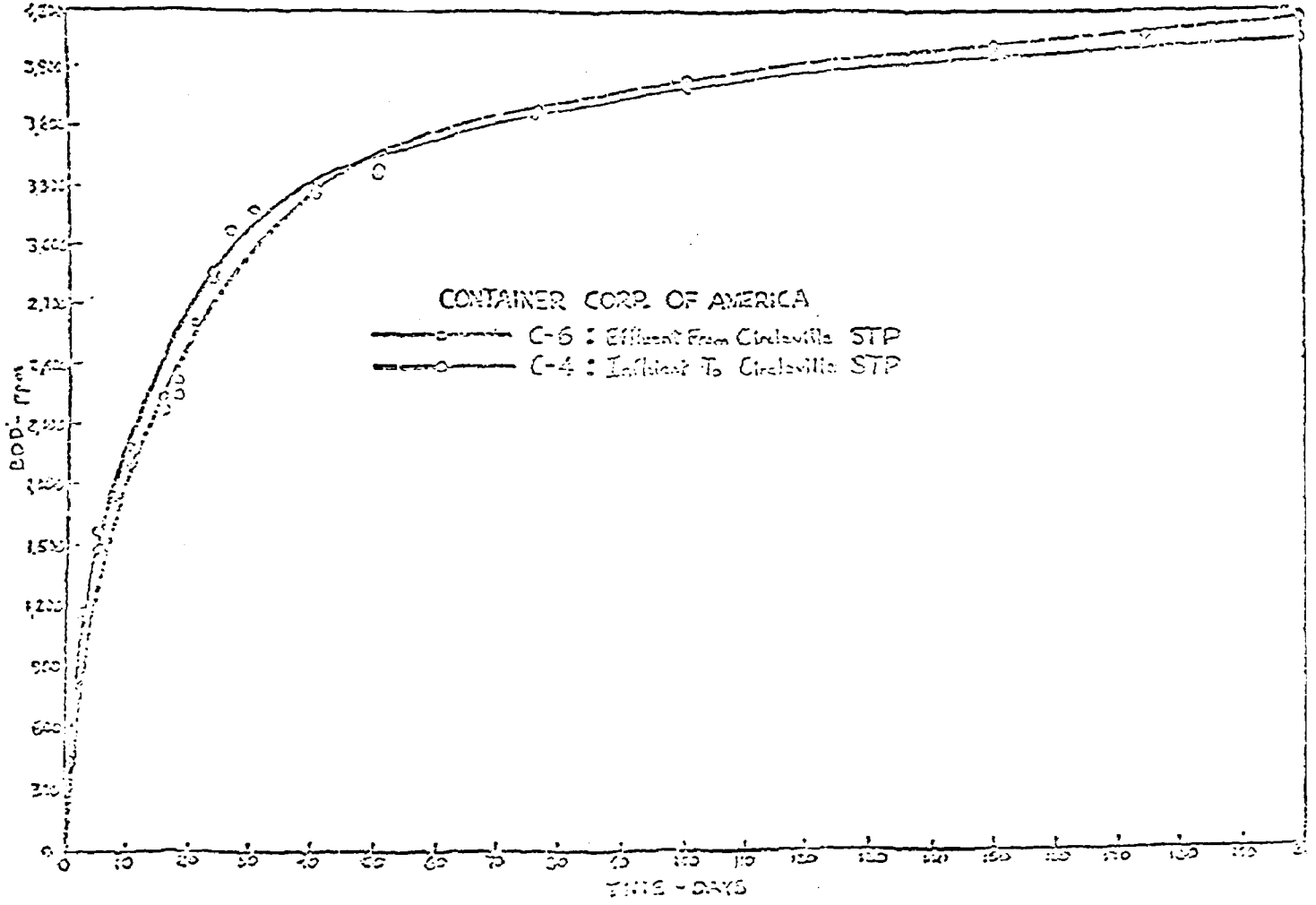
Kraft mills which surpass requirements of Schedule A are, for example: St. Regis Paper Company at Cantonment, Florida, which is discharging 5,100 pounds of BOD per day at a production of 950 tons; and the Container Corporation of American Plant at Brewton, Alabama, which discharges 2,200 pounds of BOD per day for a production of 1,050 tons per day. These plants are utilizing well designed and well operated technology in their treatment and process control system. Recent enforcement negotiations with an acid sulfite, dissolved grade mill indicate that a waste control system resulting in an effluent of 59 pounds of BOD per ton of pulp is feasible.

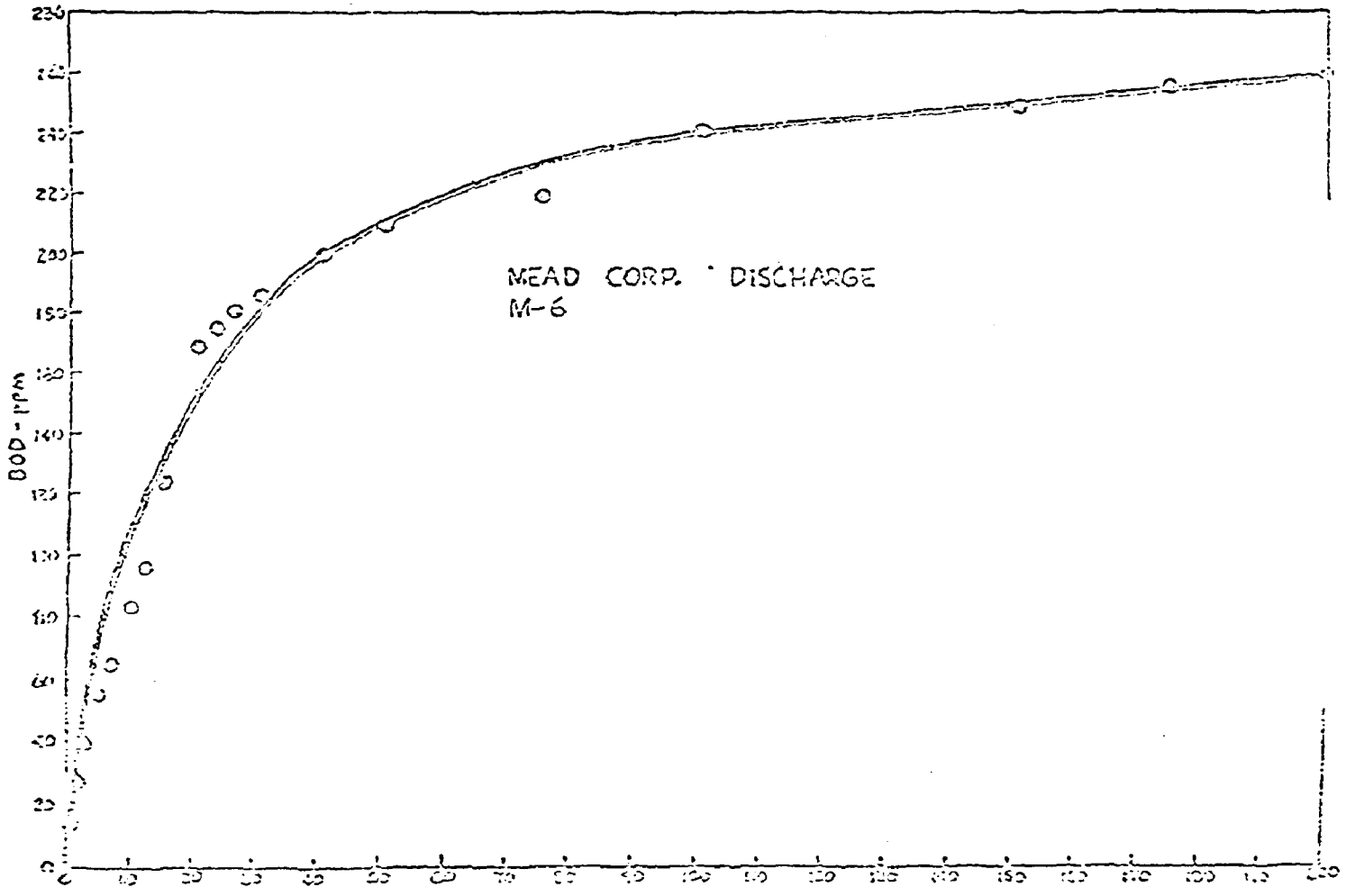
The effluent limits given in Schedule B represent a survey of treatment practices in the pulp and paper industry. These limits are based on existing facilities and are the levels which the industry should be achieving <u>today</u>.

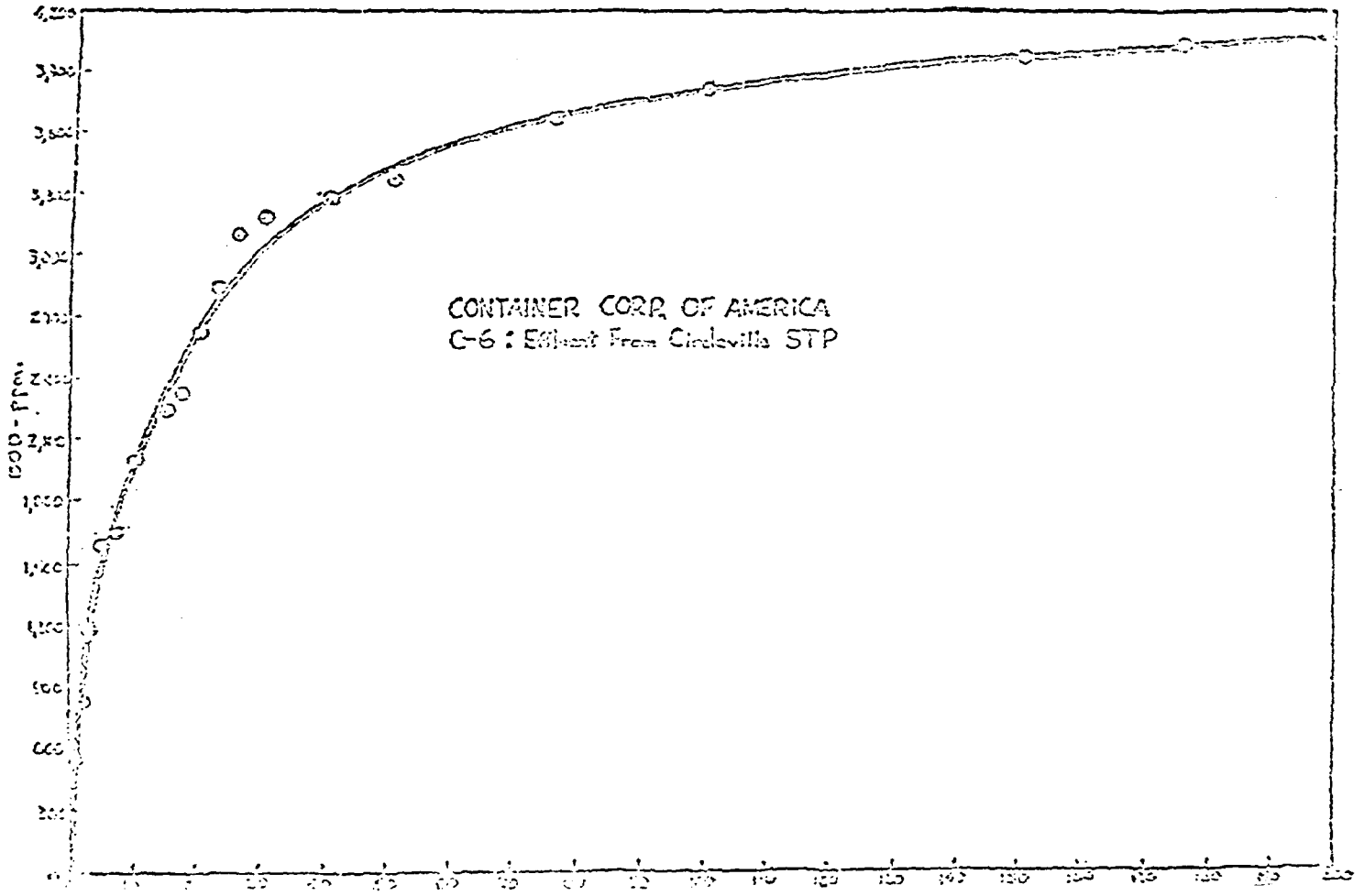
Also included for your use are charts of long-term BOD taken on effluents from two paper mills in Ohio. These charts show the five-day BOD of inadequately treated paper mill waste is a very minute fraction of the total oxygen demand of the waste. This is another rationale for requiring the maximum amount of practicable treatment.

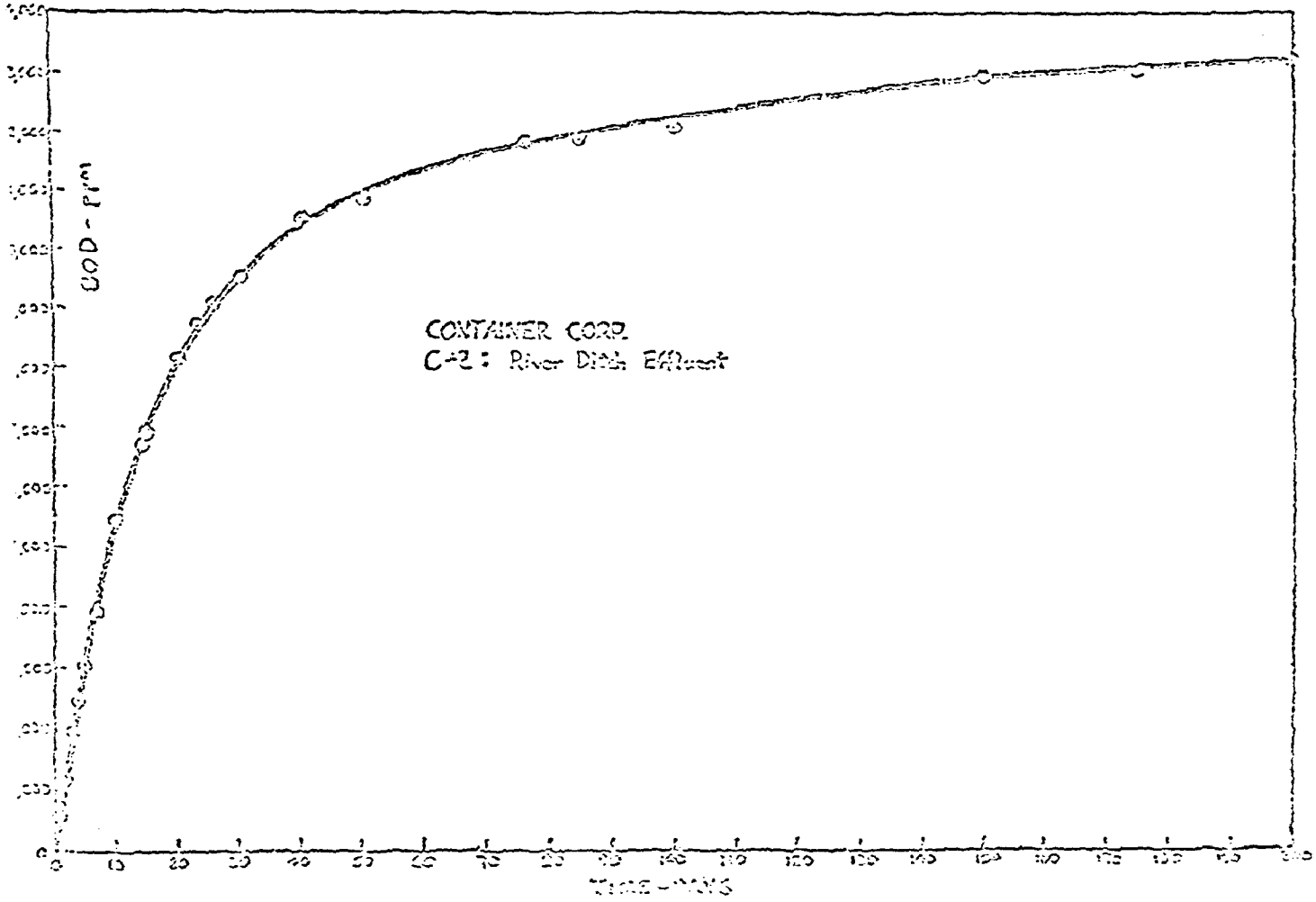

BOD - #/day
TIME - DAYS
CONTAINER CORP. OF AMERICA
Combined BOD-(lb/day) for C-2,3,5
C-2 : Main River Dike Effluent to Scioto R.
C-3 : Cooling Water Effluent to Scioto R.
C-5 : Circleville STP Effluent to Scioto R.


MEAD CORP. DISCHARGE
ACCUMULATED lb. BOD/day
M-6
BOD - lb./day


CONTAINER CORP. OF AMERICA
C-6 : Effluent From Circleville STP
C-4 : Influent To Circleville STP
BOD - ppm
TIME - DAYS


MEAD CORP. DISCHARGE
M-6
BOD - ppm


CONTAINER CORP. OF AMERICA
C-6 : Effluent From Circleville STP


CONTAINER CORP
C-2 : River Ditch Effluent

ATTACHMENT B

PULP AND PAPER MILL

EFFLUENT GUIDELINES

Parameter	*BPT Daily	*BPT 30 Day	BAT Daily	BAT 30 Day	New Sources Daily	New Sources 30 Day
PART 430 - PULP, PAPER AND PAPERBOARD	FINAL REGULATIONS, PUBLISHED 5/29/74, EFFECTIVE 5/29/74 (All references to lb/ton are lb/ton of product)					
Subpart A - Unbleached Kraft Subcategory						
BOD5	11.2 lb/ton	5.6 lb/ton	5.4 lb/ton	2.7 lb/ton	6.2 lb/ton	3.1 lb/ton
TSS	24.0 lb/ton	12.0 lb/ton	7.4 lb/ton	3.7 lb/ton	15.0 lb/ton	7.5 lb/ton
Color			30.0 lb/ton	20.0 lb/ton	30.0 lb/ton	20.0 lb/ton
pH	6.0 - 9.0		6.0 - 9.0		6.0 - 9.0	
Subpart B - Sodium Based Neutral Sulfite Semi-Chemical Subcategory						
BOD5	17.4 lb/ton	8.7 lb/ton	9.0 lb/ton	4.5 lb/ton	10.4 lb/ton	5.2 lb/ton
TSS	22.0 lb/ton	11.0 lb/ton	10.0 lb/ton	5.0 lb/ton	15.4 lb/ton	7.7 lb/ton
Color			75 percent removal.			
pH	6.0 - 9.0		6.0 - 9.0		6.0 - 9.0	
Subpart C - Ammonia Base Neutral Sulfite Semi-Chemical Subcategory						
BOD5	16.0 lb/ton	8.0 lb/ton	12.8 lb/ton	6.4 lb/ton	15.0 lb/ton	7.5 lb/ton
TSS	20.0 lb/ton	10.0 lb/ton	10.4 lb/ton	5.2 lb/ton	15.0 lb/ton	7.5 lb/ton
Color			75 percent removal.			
pH	6.0 - 9.0		6.0 - 9.0		6.0 - 9.0	

Parameter	*BPT Daily	*BPT 30 Day	BAT Daily	BAT 30 Day	New Sources Daily	New Sources 30 Day
PART 430 - PULP, PAPER AND PAPERBOARD (Continued)						
Subpart D - Unbleached Kraft--Neutral Sulfite Semi-Chemical (Cross Recovery) Subcategory						
BOD5	16.0 lb/ton	8.0 lb/ton	6.4 lb/ton	3.2 lb/ton	7.6 lb/ton	3.8 lb/ton
TSS	25.0 lb/ton	12.5 lb/ton	8.4 lb/ton	4.2 lb/ton	16.0 lb/ton	8.0 lb/ton
Color			37.5 lb/ton	25.0 lb/ton	37.5 lb/ton	25.0 lb/ton
pH	6.0 - 9.0		6.0 - 9.0		6.0 - 9.0	
Subpart E - Paperboard From Waste Paper Subcategory						
BOD5	6.0 lb/ton	3.0 lb/ton	2.6 lb/ton	1.3 lb/ton	3.0 lb/ton	1.5 lb/ton
TSS	10.0 lb/ton	5.0 lb/ton	3.2 lb/ton	1.6 lb/ton	8.0 lb/ton	4.0 lb/ton
pH	6.0 - 9.0		6.0 - 9.0		6.0 - 9.0	