CP-7 (x 8.42)	NALCO 600	PARAMEL (x.08)	ALUM-OIL TANK	CLAY TANK	NOPCO-FLOC 224-L	STAZYME GA (X)	NALCO 7651
—	—	—	3	3200	—	108.00	15
—	—	—	3	46.00	—	144.00	30
			6				
			220				
			5.45				
			X				

EPA Region 5 Records Ctr.
203903

SA
868848

OSKAR DIEKERTS

MAY 1980 x 8.42

MILL "D" CHEMICALS X

DATE	GLUE	SIZE 120 x TK	C-7 SAL	J x100	CLINCO x100 SE	TITANIUM x50	CLAY COUNTER	SODIUM ALUMINATE
4/28	98	420	–	–	144.00	100.00	4	1
29	98	360	–	–	148.00	86.50	4	1
30	98	360	–	18.00	216.00	32.50	2	1
	294	11.40	–	18.00	50[illegible]	[illegible]	10	
							x5400	
							54000	

NALCO 7651

CLAY ROTO-DIP USAGE (GALLONS)

DATE	#5	#6	TOTAL
4-28-80	1342	2479	3821
29	2901	3391	6292
30	2796	2190	4986
	[illegible]	[illegible]	[illegible]

SA 069042

H. Vogler

MAY 1980

MILL "E" CHEMICALS

DATE	H.T. CLAY TK	CAMIL WITE	CAUSTIC SODA	LATEX x.48 DOW 620	LATEX DOW 636	TSPP	RED BAP	Ammonia x 7.27 ~~7.73~~	SALT	BORAX	NOPCO 1407
4/28-30/80	100 00	52	70	24 00	–	78	–	100		60	/
	✓	✓	✓	12 00		✓		7 27		✓	
								✓			

371

NOPCO 1407	FORMALDEHYDE	PRO CORE PROTEIN	ALC.
100	100	1600	1/2
✓	✓		186
			✓

SA 868044

MACH 5E6
MILL C
MAY 1986

PULP USED IN 491 HYDRA PULPER

DATE	CELGAR 485	MARATHON 454	GD PRAIRE 559	PULP SUB	ALABAMA	SUPERIOR 518	TOTA
4-28-80	22	85	117	43	66	-	3
29	24	183	64	61	118	-	4
30	-	39	65	-	-	190	2
	96	307	[illegible]	101	114	-	1
	115 60	1292 - 2	1751		90344	/	

MACH 7,889
MILLD

MAY 1980

PULP USED IN HYDRA PULPER

DATE	PR. GEORGE 474	AHW 457	CELGAR 485	GRAND PRINCE 559	ASW 503	PRINCE ALBERT 465	TO
4/28/80	128	102	64	150	–	–	
29	–	80	4	128	184	–	
30	–	44	–	16	104	16	
	128	226	68	294	[illegible]	16	– – – –
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

SA 868946

MACH SEL
MILL C
MAY 1980

CHEMICALS USED IN BEATER

DATE	ALUM #	SIZE #	CLAY	ANSILEX	SCM ①	NALCO 68 ②	TITANIUM ③	ZEALEX	TI-PURE ④	AX ④	TOTAL
4-28-80	175	799	4060	3250	—	—	3425	—	—	—	16 99
29	275	793	7800	1400	—	—	2250	—	—	—	12518
30	200	403	6000	1200	—	—	2000	—	—	—	9803
	650	1915	17850	5850	—	—	[illegible]	—		—	[illegible]

SA 868047

TOTAL	ALPHA SIZE	WDB
116 99	—	—
125 18	—	—
98 03	—	—
[illegible]	—	—

58
068048

MACH 7,8&9
MILL D
MAY 1980

X

CHEMICALS USED IN BEATER

DATE	ALUM#	SIZE#	CLAY	ANSILEX	SCM ①	NALCO 680	AX ②	TI-PURE ③	TITANIUM ④	ZEALEX	TOTAL
4-28-80	27.35	13.43	101.50	45.00	91.75	3.05	–	–	–	–	[illegible]
29	19.50	20.35	87.40	57.00	82.50	2.79	–	–	–	–	269.6
30	20.30	14.10	79.70	35.50	37.00	2.19	30.50	–	–	–	219.2
	67.15	47.88	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	–	–	771

X

SA 068049

TAL	ALDHA SIZE	WDB (5)
52 65	57	—
69 63	9	—
19 29	—	—
71 57	66	—

CHEMICALS AT WS BULPERS

DATE	DRY ALUM
4/28/80	10.00
29	10.00
30	6.00

X

SA 068050

N. VOGLER x 278
NO RED TRIALS

MAY 1980

BLADE COATER CHEMICALS

DATE	LATEX 673 x 3.98	DEFOAMER DF122	STEGRATE DC-111 x 8.18	KELGIN HV	TSPP	CLAY HT WET x 10	AMMONIA x 7.27	UNITEX	CAMIL WITE	LATEX 6107 x 4.37	PG-208
4-28-80	10 85	20	50	75	80	31 25	30	—	—	—	—
29	10 85	20	50	25	80	31 25	30	34	—	—	—
30	6 51	12	30	45	48	18 75	18	102	—	—	—
	[illegible]	52	[illegible]		[illegible]			1	—	—	
	[illegible]		[illegible]			[illegible]					

SA 868051

-208	74-B PERCORE	STAYSIZE 112	CLINSIZE 703	NOPCOSIDE 120	CALGON T	GLYCERINE	NOPCOSANT K	CELLULOSE	CMC-7L	SCRIPTSET 720	FC 807	ATLAS
	—	—	—	—	—	—	—	—	—	—	—	—
	—	900	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—
	—	00	—		—	—	—	—	—			

SA 068052

4.33	3.58	5.09		#	#	#
LATEX 620	LATEX 222	BERSET	BORAX	PROTEIN	SODIUM NITRATE	ELWANOL
—	—	—	—	—	—	—
—	—	—	—	—	—	225
—	—	—	—	—	—	—
—	—	—	—	—	—	—

SA 868853

MAY 1980 BLADE COATER BROKE

DATE	UNCOATED	COATED	TOTAL	RED TRIAL UNCOATED	COATED	TOTAL
4-28-80	2800	8000	10800			
29	3250	8950	12200			
30	2900	4795	7695			
	8150	217[illegible]	[illegible]			

MAY 1980

REJECTED RAW STOCK AT THE BLADE

	0203
09-2462	4730
09-2452	5530
	10

SA 868055

ED ARNOLD x 250

JUNE 1980

MILL "C" CHEMICALS

DATE	ALUM	3960 TK CLAY	GAL 2.25 SIZE	x100 6758 # SIZE	753 x100 CLINSIZE	STARCHME J x100	STARSIZE 112	TITANIUM	ANSILEX	DEFOAMER	x 8.42 CP-7
5-27-80	13 00	35640	17.72	2000	—	—	—	28 00	9 00	15	
28	6 00	23760	24 67	—	—	—	—	38 50	13 75	15	—
29	5 00	47520	12 43	—	—	—	—	32 50	15 00	10	—
30	2 50	43560	9 57	—	—	—	—	72 00	21 50	15	—
31	3 00	35640	8 56	2000	—	—	18 00	23 75	28 25	5	—
1	5 00	27720	9 39	—	—	—	30 00	85 00	39 50	15	—
2	7 50	23760	9 29	—	—	—	40 00	71 00	33 00	5	—
3	3 50	23760	9 28	—	—	—	10 00	68 00	32 00	10	—
4	5 00	31680	9 54	—	—	—	—	36 00	17 00	15	—
5	4 50	31680	9 93	—	—	—	—	20 00	10 00	15	—
6	5 00	39600	10 32	—	—	—	—	22 00	11 00	15	—
7	6 50	23760	7 39	—	—	—	—	31 50	18 00	15	—
8	2 50	43560	10 18	—	—	—	—	33 00	24 00	15	—
9	8 50	31680	6 34	—	—	—	—	49 50	27 50	15	—
10	7 50	35640	8 67	—	—	—	—	21 50	24 50	15	—
11	4 00	43560	9 64	—	—	—	—	10 50	26 00	15	—
12	8 00	35640	9 29	—	—	—	—	7 50	21 00	15	—
13	10 50	47520	12 19	—	—	—	—	13 75	39 00	15	—
14	10 50	47520	8 45	—	—	—	—	10 00	24 50	15	—
15	5 50	23760	16 54	—	—	—	—	13 50	9 00	15	—
16	2 00	23760	19 12	—	—	—	—	13 50	9 00	15	—
17	5 50	35640	9 81	—	—	—	—	50 50	26 50	15	—
18	11 50	35640	9 35	—	—	—	—	49 50	19 50	15	—
19	11 00	51480	12 23	—	—	—	—	56 00	20 50	15	—
20	4 00	39600	11 49	—	—	—	—	48 00	29 50	15	—
21	2 00	47520	11 20	—	—	—	—	18 00	12 00	15	—
22	5 00	27720	11 80	—	—	104 00	—	30 00	16 00	15	—
23	5 50	47520	10 56	—	—	132 00	—	44 00	19 50	15	—
24	8 00	35640	8 26	—	—	144 00	—	21 50	13 50	15	—
25	9 00	31680	15 57	—	—	136 00	—	36 00	15 00	15	—
26	5 50	35640	12 29	—	—	64 00	—	31 50	14 00	15	—
27	8 00	35640	12 15	—	—	—	—	26 00	31 50	15	—
28	11 00	27720	10 00	—	—	—	—	21 00	20 00	15	
29	10 50	35640	10 08	—	—	—	—	13 50	16 00	15	—
30	5 00	31680	9 58	—	—	—	—	26 50	14 50	15	
		1,279,440		1000		1800	980	1,171,00	77 050		

SA 868056

	NALCO 680	PARAMEL	ALUM-ON-TANK	CLAY TANK	NOPCO-FLOC 224-L	STAZYME GA	NALCO 7651	DOUGLAS STARCH	DRY CLAY	PAPERAD
	—	27760	4	3900	—	8200	75	—	—	
	—	38460	3	3300	—	6000	200	—	—	
	—	25740	2	4000	—	3600	40	—	—	
	—	—	2	4500	—	14400	20	—	—	
	—	—	1	3900	—	12200	60	—	—	
	—	—	2	2400	25	12000	—	—	—	
	—	—	3	2900	15	8400	—	—	—	
	—	—	1	2600	15	6000	—	—	—	
	—	—	2	3500	20	10800	—	—	—	
	—	—	2	2900	20	10800	—	—	—	
	—	—	2	4600	10	13600	—	—	—	
	—	—	2	3500	10	12000	—	—	—	
	—	—	1	5200	25	12000	—	—	—	
	—	—	3	3600	40	10900	—	—	—	
	—	—	3	4000	10	9600	—	—	—	
	—	—	2	4000	15	13200	—	—	—	
	—	—	3	4300	15	12000	—	—	—	
	—	—	4	4900	10	12000	—	—	—	
	—	—	4	5000	20	14500	—	—	—	
	—	28780	2	2800	15	3600	—	—	—	
	—	30980	1	2200	25	2200	—	3800	—	
	—	2000	2	4600	30	—	—	12100	—	
	—	—	4	2500	5	—	—	13300	—	
	—	—	3	5500	5	—	—	17100	—	
	—	—	3	4000	20	—	—	15600	—	
	—	—	4	5600	25	—	—	16800	—	
	—	—	2	2400	20	—	—	6400	400	
	—	—	2	4500	25	—	—	—	1800	
	—	—	3	4500	15	—	—	—	—	
	—	240 40	4	3800	25	—	—	—	—	
	—	6500	2	4200	30	8200	—	—	—	2200
	—	—	3	4300	35	13200	—	—	—	1700
	—	—	4	3200	40	10000	—	—	—	
	—	—	4	2200	10	13200	—	—	—	
	—	—	2	4000	30	12000	—	—	—	
		185,280	88.5 x 220	3.95	122100	21700		8100		

SA 868857

OSKAR DIKERTS

JUNE 1980

MILL "D" CHEMICALS

DATE	GLUE	SIZE 120 x TK	C-7	J x 100	CLINCO SS x 100	TITANIUM x 50	CLAY COUNTER x 5400	SODIUM ALUMINATE
5-27-80	—	—	—	—	—	—	—	—
28	98	4 20	—	—	150 00	130 00	4	1
29	1 47	5 40	—	—	170 00	75 00	2	1
30	98	4 20	—	—	112 00	105 00	3	—
31	1 46	4 80	—	—	126 00	100 00	3	—
1	98	4 80	—	—	126 00	105 00	3	—
2	98	6 60	—	—	124 00	100 00	—	—
3	98	6 40	—	—	126 00	105 00	2	—
4	49	6 40	—	—	144 00	100 00	3	—
5	49	3 60	—	—	160 00	100 00	3	—
6	1 47	7 20	—	—	128 00	64 00	2	—
7	1 47	6 00	—	—	—	80 00	2	1
8	49	6 00	—	—	122 00	127 50	5	2
9	97	7 20	—	—	110 00	90 00	9	2
10	98	8 40	—	—	100 00	72 50	12	2
11	49	4 80	—	—	140 00	65 00	12	2
12	1 47	4 80	—	—	202 00	34 00	5	—
13	98	3 60	—	—	154 00	105 00	3	—
14	49	3 60	—	90 00	160 00	100 00	3	—
15	49	3 60	—	—	180 00	105 00	—	—
16	1 47	5 40	—	—	180 00	100 00	3	—
17	—	6 00	—	—	98 00	125 00	2	—
18	49	5 40	—	—	120 00	125 00	2	—
19	49	2 40	—	—	114 00	125 00	2	—
20	1 47	2 40	—	—	106 00	55 00	—	1
21	5 87	3 20	—	—	124 00	63 50	—	1
22	49	3 60	—	12 00	192 00	125 00	—	1
23	—	3 60	—	62 00	—	100 00	—	—
24	—	4 80	—	—	158 00	85 00	—	1
25	—	6 60	3	—	144 00	65 00	—	1
26	—	4 20	2	14 00	144 00	110 50	—	1
27	—	3 60	1	84 00	96 00	105 00	—	— 1
28	—	4 80	—	84 00	64 00	100 00	—	—
29	49	6 00	—	84 00	48 00	95 00	—	—
30	49	—	—	112 00	114 00	125 00	—	—
				542 00	[illegible]	[illegible]	[illegible]	

SA 068058

CLAY ROTO-DIP USAGE (GALLONS)

DATE	#5	#6	TOTAL
5-27-80	24 28	7 05	31 33
28	11 43	22 07	33 50
29	12 24	6 97	19 21
30	13 72	36 83	50 55
31	25 06	31 64	56 70
1	28 56	4 34	32 90
2	22 11	7 39	29 50
3	25 44	4 63	30 07
4	30 11	19 31	49 42
5	31 71	18 02	49 73
6	39 07	19 24	58 31
7	18 11	22 92	41 03
8	12 66	38 39	51 05
9	25 91	13 63	39 54
10	25 84	13 68	39 52
11	29 25	14 98	44 23
12	34 62	11 25	45 87
13	46 04	14 63	60 67
14	39 48	28 17	67 65
15	23 46	13 12	36 58
16	21 00	26 28	47 28
17	20 66	18 66	39 31
18	22 38	23 18	45 56
19	25 52	44 31	69 83

SA 068059

JUNE 1980 — MILL "E" CHEMICALS

DATE	H.T CLAY TK	CAMLWITE	CAUSTIC SODA	LATEX 620	LATEX 50	LATEX 636	TSPP	RED BIT	AMMONIA 7.27	SALT	BORAX	NOPCO 1007
5/27-30/80	300.00	143	—	66.00		—	107	—	231	—	165	30[illegible]
2-4	175.00	91	—	42.00		—	56	—	147	—	105	210
5-6	100.00	60	100	24.00		—	80	—	84	—	60	10[illegible]
9-11	200.00	104	—	48.00		—	56	—	168	—	120	250
12-13	125.00	65	40	30.00		—	35	2	105	—	75	17[illegible]
16-18	200.00	104	—	48.00		—	56	—	168	—	120	2[illegible]
19-20	150.00	78	40	36.00		—	42	—	126	—	90	200
23-25	175.00	91	—	42.00		—	49	—	147	—	105	210
26-27	100.00	52	20	24.00		—	28	—	84	—	60	14[illegible]
30	50.00	26	—	12.00		—	14	—	42	—	30	80
	1500.00	814	200	372.00		—	523	2	1302	—	930	191[illegible]
				146.00								
									9466			

SA 868060

Dopco 1407	Formald-ehyde	Pro Cote Protein	Alc.
308	275	4400	–
210	175	2800	–
105	100	1600	–
250	200	3200	–
170	125	2000	–
240	200	3200	–
200	150	2400	–
210	175	2800	–
140	100	1600	–
80	50	800	–
1913	1550	24800	

SA 068061

MACH 5E6
MILL C
JUNE 1980

PULP USED IN HYDROPULPERS

DATE	SUPERIOR	ASW	MARATHON	AHW	EDDY	PS	EDDY HW	DOMTAR	PRINCE ALBERT	WESTERN HW	TOTAL
5-27-80	60	49	206	27	—	—	—	—	—	—	342
28	—	30	213	18	55	—	—	—	—	—	316
29	—	—	—	21	171	—	—	—	—	—	192
30	—	145	—	16	88	40	—	—	—	—	289
31	—	70	—	41	88	47	28	28	—	—	302
1	—	48	—	44	—	37	74	26	88	—	317
	60	342	419	167	[illegible]	[illegible]	102	[illegible]	[illegible]	—	[illegible]
2	—	121	—	42	—	17	14	—	70	—	314
3	—	125	—	46	—	27	37	—	69	—	304
4	—	3	—	108	—	39	1	76	84	10	321
5	—	—	—	40	12	39	—	70	80	78	319
6	—	—	—	—	135	45	—	—	84	132	396
7	—	—	—	—	128	42	—	—	85	105	334
8	—	166	—	—	24	42	—	—	37	103	390
	—	415	—	286	297	251	52	146	[illegible]	[illegible]	
9	—	127	—	—	—	35	—	—	—	69	285
10	—	48	—	72	—	48	—	—	—	22	384
11	—	7	—	—	—	39	6	—	28	—	339
12	—	—	—	—	—	38	—	—	96	—	334
13	—	—	—	—	—	51	—	12	96	—	399
14	—	—	—	8	—	53	—	159	84	—	387
15	—	—	—	36	157	68	—	45	72	—	378
	—	182	—	111	[illegible]	33	—	[illegible]	371	11	
16	—	—	—	30	60	41	—	—	16	—	336
17	—	72	—	89	—	37	—	—	—	—	332
18	—	84	—	62	—	28	—	—	—	6	260
19	—	130	—	36	—	—	—	—	—	39	277
20	—	105	—	—	—	31	—	—	—	79	295
21	—	138	—	—	—	46	—	—	—	83	338
22	—	102	—	—	148	50	—	—	—	84	352
	—	631	—	211	108	[illegible]	—	—	16	[illegible]	21
	60	1570	419	786	964	934	160	416	989	805	8852
23		63			108					82	321
24		137								69	252
25		94								62	[illegible]
26		153								100	[illegible]
27		184								124	[illegible]
28		124								51	[illegible]
29		161									[illegible]
30		108									[illegible]
		1024	[illegible]	[illegible]	108	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SA 068062

TOTAL	PR GEORGE	CELGAR	SOUTHWEST NW	BRUNSWICK	KAMLOOP	Gr. Prairie
342	–	–	–	–	–	
316	–	–	–	–	–	
192	–	–	–	–	–	
289	–	–	–	–	–	
302	–	–	–	–	–	
317	–	–	–	–	–	
17[illegible]	–	–	–	–	–	
314	–	–	–	–	–	
304	–	–	–	–	–	
321	–	–	–	–	–	
319	–	–	–	–	–	
396	–	–	–	–	–	
354	–	–	–	–	–	
390	18	–	–	–	–	
	18	–	–	–	–	
285	54	–	–	–	–	
384	96	72	26			
339	14	162	–	83	–	
334	–	114	–	86	–	
399		141	4	95		
387	–	–	53	30	–	
378			–	–		
[illegible]6	164	489	83	294	–	
335	–	–	–	–	189	
332	–	56	–	–	84	
260	–	80	–	–	–	
277	–	72	–	–	–	
295	–	–	–	–	80	
338	–	–	–	–	72	
352	–	–	–	–	68	
21[illegible]	–	208	–	–	4[illegible]	
8852	182	697	83	294	493	
321		–			52	16
252		–				46
298		80				62
341		8				80
402		94				
332		45	112			
348		46	141			
290		114	68			
[illegible]	[illegible]	387	32[illegible]	[illegible]	52[illegible]	204

SA 068063

MACH 7,8,9
MILL D
JUNE 1980

PULP USED IN HYDRO PULPERS

	ASW	AHW	SUPERIOR	CELGAR	KAMLOOPS	PANAMA	MARATHON	PRINCE GEORGE	GD PRAIRE	PR ALBERT	TOTAL
5-27-80	212	160	—	—	—	—	—	—	—	—	372
28	64	120	164	12	—	—	—	—	—	—	360
29	—	84	64	—	104	—	—	—	—	—	252
30	100	58	—	—	70	—	—	—	—	—	228
31	118	10	—	—	88	120	—	—	—	—	336
1	48	—	20	—	48	52	—	—	—	—	168
	42	432	248	12	310	172	—	—	—		
2	24	76	251	—	—	—	45	—	—	—	396
3	—	100	58	—	—	—	88	138	—	—	384
4	—	138	174	—	—	—	—	60	—	—	372
5	—	162	26	—	—	—	232	—	—	—	420
6	—	134	—	—	—	—	172	—	18	—	324
7	100	72	—	192	—	—	—	—	—	—	364
8	166	24	—	206	—	—	—	—	—	—	396
	270	706	307	398	—	—	307	115		—	[illegible]
9	52	19	—	119	—	—	—	—	—	86	276
10	—	62	—	—	183	—	—	—	—	79	324
11	148	116	—	55	—	—	113	—	—	—	432
12	68	81	—	—	—	—	—	—	—	—	390
13	6	94	—	—	—	—	—	—	—	—	392
14	68	100	—	—	—	—	—	—	—	154	372
15	—	142	—	—	212	—	—	—	—	42	408
	342	614	—	174	395	—	113	—	—		
16	184	162	—	—	84	—	—	—	—	—	420
17	84	114	—	—	88	—	—	94	—	—	384
18	58	100	—	—	—	—	—	30	100	48	336
19	108	122	—	—	—	—	—	—	20	—	300
20	58	14	—	—	—	—	—	—	—	134	264
21	112	116								88	372
22	90	156	46	—	—	—	—	—	—	—	432
	698	784	43	—	162	—	—	121	12		
	1872	2536	805	584	867	172	650	322	188	631	9304 ✓
23	104	100									362
24	100	84	66								354
25	24	64	122								336
26	140	78	92		10						320
27	136	90			62						268
28	136	104			62						[illegible]
29	96	94			26						288
30	128	44	12								388
	864	638	292	—	160	—	—	—	—	—	[illegible]

SA 068064

TOTAL	DOMTAR	EDDY	WESTERN HW	Nekoosa	Brunswick H W
372	—	—	—		
360	—	—	—		
252	—	—	—		
228	—	—	—		
336	—	—	—		
168	—	—	—		
17[illegible]	—	—	—		
396	—	—	—		
384	—	—	—		
372	—	—	—		
420	—	—	—		
324	—	—	—		
364	—	—	—		
396	—	—	—		
2656	—	—	—		
276	—	—	—		
324	—	—	—		
432	—	—	—		
390	9 51	—	—		
392	2 12	—	—		
372	10	40	—		
408	12	—	—	—	
2[illegible]	385	40	—		
420	—	—	—		
384	—	—	—		
336	—	—	—		
300	—	—	—		
264	—	—	58		
372		56			
432	—	138	—		
2[illegible]	—	194	58		
9304	385	234	58		
342		158			
354		92		12	
336		66		60	
320					
268					
322					
288		72			
328		124			20
2574	—	512	—	72	20

SA 068065

MACH 5,6
MILL C
JUNE 1980

CHEMICALS USED IN BEATERS

DATE	ALUM #	SIZE #	CLAY #	ANSILEX #	SCM ① #	TITANIUM ② #	Ti PURE ③	Ax ④	WDB ⑤	ZEALEX	TOTAL
5-27 80	200	13 03	31 00	8 00	—	28 00	—	—	—	—	22 03
28	225	19 88	36 50	15 00	—	41 00	—	—	—	—	[illegible]
29	150	11 76	18 50	15 00	—	32 50	—	—	—	—	79 26
30	231	7 45	54 63	21 13	—	72 00	—	—	—	—	157 5[illegible]
31	263	6 59	56 50	28 25	—	73 75	—	—	—	—	167 7[illegible]
1	250	6 71	45 00	39 50	—	85 00	—	—	—	—	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—	—	—	—	
2	250	6 53	33 00	33 00	—	71 00	—	—	—	—	146 03
3	275	6 83	27 00	32 00	—	68 00	—	—	—	—	136 58
4	250	7 03	42 00	17 00	—	36 00	—	—	—	—	104 53
5	250	7 03	56 00	10 00	20 00	—	—	—	—	—	95 5[illegible]
6	275	7 85	63 00	11 00	22 00	—	—	—	—	—	106 60
7	200	6 30	56 00	22 00	4 00	37 50	—	—	—	—	127 80
8	225	7 33	70 00	24 00	—	16 00	—	—	17 00	—	136 58
	17[illegible]	[illegible]	347 00	[illegible]	[illegible]	228 [illegible]	—	—	[illegible]	—	
9	2 38	5 72	60 50	26 75	—	49 50	—	—	—	—	144 85
10	2 50	6 83	78 00	24 50	—	21 50	—	—	—	—	133 3[illegible]
11	3 00	7 68	80 00	26 00	—	4 50	—	—	6 00	—	127 18
12	3 25	6 96	66 00	21 00	—	7 50	—	—	—	—	104 71
13	2 82	8 68	86 60	32 75	—	13 38	—	—	—	—	150 2[illegible]
14	2 50	7 28	78 00	24 50	—	13 00	—	—	—	—	25 28
15	2 25	14 00	22 00	9 00	—	13 50	—	—	—	—	60 75
	12 70	57 15	471 10	172 50	—	122 88	—	—	[illegible]	—	
16	2 25	14 25	18 00	9 00	—	13 50	—	—	—	—	57 00
17	2 25	8 06	53 00	26 50	—	50 25	—	—	—	—	140 06
18	2 50	6 74	57 00	19 25	—	49 00	—	—	—	—	134 49
19	1 85	8 53	64 00	20 50	—	46 90	—	—	—	—	131 78
20	2 00	9 80	62 00	29 50	—	48 00	—	—	—	—	1[illegible] 5[illegible]
21	1 80	8 33	72 00	12 00	—	18 00	—	—	—	—	112 13
22	1 80	8 20	66 00	16 00	—	30 00	—	—	—	—	122 00
	14 [illegible]	63 11	39 20	132 75	—	265 65	—	—	—		
23	1 80	8 22	63 50	19 50	—	42 75	—	—	—	—	[illegible]
24	1 45	6 81	64 00	13 50		23 50					[illegible]
25	2 75	10 04	46 00	15 00	—	34 75	—	—	—	—	108 5[illegible]
26	2 00	8 10	22 00	16 00	—	36 00	—	—	—	—	106 10
27	2 50	8 63	46 00	31 50	—	28 00	—	—	—	—	33 8[illegible]
28	2 75	7 88	64 00	20 00	—	20 00	—	—	—	—	[illegible] 63
29	2 75	6 61	63 00	15 00	—	13 50	—	—	—	—	[illegible] 86
30	2 63	6 94	57 00	14 50	—	27 25	—	—	—	—	[illegible]
	18 [illegible]	63 43	425 50	145 00	—	225 75	—	—	—	—	[illegible]
	82 22	298 01	1[illegible] 73	724 13	46 00	1175 03	—	—	23 00		[illegible]

SA 068066

TOTAL	PAPER A.O
82 03	
114 63	
79 26	
157 52	
167 72	
178 71	
[illegible]	
146 03	
136 58	
104 53	
95 53	
106 60	
127 80	
136 58	
153 65	
144 85	
133 33	
127 18	
104 71	
150 23	
125 28	
60 75	
4	
57 00	
140 06	
134 49	
151 78	
150 50	
112 13	
122 00	
167 16	
135 77	
109 26	
108 54	22 00
106 10	
133 83	17 00
114 63	—
100 86	—
108 32	—
17 31	39 00
[illegible]	25 00

SA 068067

MACH 7,8,9
MILL D
JUNE 1980

CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEX	SCM ①	AX ②	TI PURE ③	TITANUM ④	WDB ⑤	NALCO 680	TOTAL
5-27-80	22 80	12 60	123 00	22 50	—	—	—	—	39 00	228	222
28	28 30	30 55	96 20	24 00	—	500	—	—	111 50	288	3484
29	18 85	13 05	69 70	38 50	—	—	—	160	65 50	192	2070
30	21 73	17 29	75 40	54 50	9200	—	—	—	11 00	204	2739
31	20 35	11 70	55 00	—	12 00	—	—	—	—	217	01
1	30 53	28 01	80 70	19 50	—	—	—	—	57 00	209	2178
	112 [illegible]	113 20	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]
2	31 70	32 61	62 40	24 00	—	—	—	—	39 50	255	1933
3	32 05	35 20	120 00	21 00	—	900	—	—	—	178	2258
4	25 00	21 25	130 50	19 50	—	—	—	—	21 00	222	2256
5	21 80	12 65	80 50	38 50	—	—	—	—	6 00	246	2219
6	33 70	20 55	146 60	35 50	—	1200	—	—	52 00	367	3040
7	29 40	19 55	85 60	41 00	—	—	—	—	89 00	297	2675
8	24 65	23 88	93 00	80 00	15100	—	—	50	14 50	305	310 51
	1[illegible] 30	165 69	718 60	[illegible]	[illegible]	21	—	[illegible]	2210	[illegible]	[illegible]
9	23 30	26 95	68 50	44 50	87 00	—	—	—	—	239	2530
10	35 85	38 10	49 00	50 00	13 00	400	—	—	58 50	330	2519
11	36 05	16 15	117 50	29 75	—	24 25	—	—	40 00	281	2665
12	30 00	18 00	148 00	13 50	—	—	—	—	24 50	300	2340
13	26 48	16 05	94 00	39 50	—	525	—	—	25 50	264	2593
14	21 30	11 70	89 50	18 50	600	700	—	—	32 00	213	2331
15	33 85	17 40	102 25	39 00	—	1350	—	—	68 50	288	2478
	106 65	141 35	6875	231 75	[illegible]	54 [illegible]	—	—	[illegible]	[illegible]	[illegible]
16	33 00	25 20	91 50	42 00	—	50	—	40 00	[illegible]	245	2786
17	34 50	35 00	75 30	60 00	—	—	—	—	57 50	189	3041
18	28 50	37 30	60 30	41 00	6100	50	—	—	28 00	171	2586
19	24 08	14 89	98 88	31 50	51 75	—	—	—	—	241	2235
20	24 05	12 73	88 30	35 50	57 75	—	—	—	—	191	2162
21	25 20	15 75	117 80	53 50	53 00	—	—	—	—	232	2337
22	30 90	19 50	113 00	49 50	63 50	—	—	—	—	309	2794
	145 23	160 39	645 [illegible]	[illegible] 300	291 [illegible]	[illegible]	—	4[illegible]	[illegible]	15[illegible]	[illegible]
23	29 55	18 90	142 90	27 00	54 50	—	—	—	—	273	2458
24	30 60	26 43	112 80	35 50	26 00	—	—	—	—	234	2839
25	28 50	30 21	112 70	31 00	63 50	—	—	—	—	189	2680
26	22 30	21 10	107 60	45 60	53 50	—	—	—	33 50	165	3065
27	20 40	23 31	79 70	62 75	39 00	—	—	—	60 75	223	2881
28	22 40	27 13	49 10	79 [illegible]	—	—	—	—	141 00	240	3215
29	23 40	24 43	114 40	71 50	—	1200	—	—	101 50	234	3545
30	23 70	29 65	81 10	66 00	94 50	—	—	—	13 50	237	3103
	201 45	201 76	770 50	41[illegible] 75	401 00	1700	—	—	34 [illegible]	[illegible]	[illegible]
	944 19	782 39	3304 92	1416 00	1453 00	9800	—	41 00	[illegible]	[illegible]	[illegible]

SA 868868

CHEMICALS AT WS PULPERS

TAL	ZEALEX	ALPHA SIZE	PAPERMAX	CALCIUM CARBONATE	DATE	DRY ALUM
22.18	—	—	—	—	5-27-80	6.00
48.43	—	—	—	—	28	9.00
09.02	—	—	—	—	29	6.00
3.96	—	—	—	—	30	10.00
1.24	—	—	—	—	31	8.00
7.83	—	—	—	—	1	8.00
.66	—	—	—	—	2	10.00
3.33	—	57	—	—	3	9.00
25.89	—	40	6.50	—	4	10.00
15.61	—	10	6.00	—	5	10.00
21.91	—	—	—	—	6	9.00
24.04	—	—	—	—	7	10.00
67.52	—	—	—	—	8	10.00
0.58	—	—	—	—	9	9.00
[illegible]	—	111	12.[illegible]	—	10	8.00
53.04	—	—	—	—	11	10.00
51.96	—	[illegible]	—	—	12	10.00
6.55	—	4	—	—	13	11.00
34.00	—	—	—	—	14	10.00
59.34	—	—	—	—	15	9.00
33.13	—	—	—	45.00	16	9.00
4.78	—	—	—	7.50	17	9.00
[illegible]	—	25	—	52.50	18	10.00
78.66	—	—	—	—	19	10.00
04.19	—	—	—	—	20	9.00
58.61	—	30	—	—	21	10.00
23.51	—	—	—	—	22	10.00
6.26	—	—	—	—	23	8.00
3.77	—	—	—	—	24	10.00
9.49	—	—	—	—	25	7.00
[illegible]	—	30	—	—	26	9.00
15.58	—	—	—	—	27	8.00
53.93	—	26	—	—	28	9.00
.880	—	—	—	—	29	9.00
26.55	—	—	—	—	30	4.00
88.14	—	—	—	—		
21.53	—	—	—	—		
54.57	—	—	—	—		
0.32	—	—	—	—		
[illegible]	—	26	—	—		
[illegible]	—	192	12.50	52.50		

SA 068069

HARRY VOGLER x278
NO R&D TRIALS
JUNE 1980

BLADE COATER CHEMICALS

DATE	LATEX 673 x3.98	DEFOAMER DE122	DC-111 x8.18	KELGIN NU	TSPP	CLAY H.T. WET x10	AMMONIA x7.27	VOITEX	CAMIL WITE	LATEX 6107 x4.37	PG 20
5-28-80	15 19	28	70	105	112	43 75	42	2 38	–	–	–
29	4 34	8	20	30	32	12 50	12	68	–	–	–
30	8 01	24	42	45	48	21 30	33	1 02	9 00	–	50
2	–	72	–	–	30	28 20	48	–	3 00	–	"
3	–	60	–	–	25	23 50	40	–	2 50	–	–
4	–	36	–	–	15	14 10	24	–	1 50	–	–
5	–	72	–	–	30	28 20	48	–	3 00	–	–
6	10 85	32	50	75	80	35 94	36	1 70	50	–	–
7	10 85	20	50	75	80	31 25	30	1 70	–	–	–
8	13 02	24	60	90	96	37 50	36	2 04	–	–	–
9	–	36	–	–	15	14 07	47	–	1 50	–	–
10	–	60	–	–	25	23 45	40	–	2 50	–	–
11	–	60	–	–	25	23 45	40	–	2 50	–	–
12	–	72	–	–	30	28 14	48	–	3 00	–	–
13	13 02	36	60	90	116	42 19	50	2 04	50	–	–
14	6 51	12	30	45	83	18 75	32	1 02	–	–	–
16	–	–	–	–	54	–	112	–	27 300	–	600
17	8 68	76	40	60	89	48 45	2 18	1 36	2 50	–	–
18	–	48	–	–	20	18 76	88	–	2 00	–	–
19	–	60	–	–	25	23 50	40	–	2 50	–	–
20	–	48	–	–	20	18 36	32	–	2 00	–	–
21	4 95	12	24	75	51	14 10	18	–	–	–	–
23	4 95	12	24	75	51	14 10	18	–	–	–	–
24	8 25	20	40	1 25	85	23 50	30	–	–	–	–
25	3 30	8	16	50 50	34	9 70	12	–	–	–	–
26	4 95	12	24	75	51	14 10	18	–	–	–	–
27	9 16	24	46	70 70	65	25 15	34	34	6 00	–	1000
28	6 34	16	36	30	32	15 90	32	–	12 00	–	2000
29	4 34	32	20	30	32	21 30	32	–	10 00	–	–
30	8 68	28	40	[illegible]	64	29 40	34	–	5 00	–	–
	145 39	10 48	[illegible]	11 45	15 15	702 61	13 24	14 28	344 50		3500
	5286 5		5661			702 610	9625				

SA 068070

S 208	74-8 PENCORE	STAYSIZE 112	CLINSIZE 293	NOPCOSIDE 120	CALGON T	GLYCERINE	x10 NOPCOSANT K	CELLOLOSE	CMC-7L	x 2.27 SCRIPTSET 720	x 2.44 FC-207	x [illegible] ATLAS 289
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
1500	—	3200	—	—	9	—	3	—	—	—	—	—
400	—	2800	—	—	—	—	—	—	—	—	—	—
—	—	3200	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	2400	—	—	—	—	—	—	—	—	—	—
—	—	2400	—	—	—	—	—	—	—	—	—	—
—	—	400	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	900	—	—	—	—	—	—	—	51	15	—
—	—	2100	—	—	—	—	—	—	—	119	35	—
600	2400	—	—	40	—	120	30	—	—	—	—	162
—	—	—	—	—	—	—	—	—	60	—	—	—
—	—	—	—	—	—	—	—	—	48	—	—	—
—	—	—	—	—	—	—	—	—	60	—	—	—
—	—	—	—	—	—	—	—	—	12	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	1200	—	—	—	—	—	—	—	—	—	—
—	—	1600	—	—	—	—	—	—	—	—	—	—
—	—	1800	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
1000	—	—	—	8	6	—	2	—	—	—	—	—
2000	—	—	—	8	12	—	4	—	—	—	—	—
—	—	—	—	—	—	—	4	—	—	—	—	—
—	—	—	—	—	—	—	2	—	—	—	—	—
5500	2400	22000		56	27	120	45		180	170	50	162
							450			386		

SA 068071

LATEX 620	LATEX 722	BORAX	LU PROTEIN	SODIUM NITRATE	ELVANOL	BERSET
x 4.33	x 3.98					x 9.09
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	—	—	—	64 00	—	—
13 20	—	1 90	18 00	64 00	—	45
11 00	—	75	15 00	64 00	—	38
6 60	—	45	9 00	—	—	23
13 20	—	45	18 00	—	—	45
2 20	—	15	3 00	—	—	8
—	—	—	—	—	—	—
—	—	—	—	—	—	—
8 84	—	45	18 00	61 00	—	28
11 00	—	75	15 00	48 00	—	37½
11 00	—	75	15 00	8 00	—	38
13 20	—	90	18 00	—	—	45
2 20	—	15	3 00	—	—	7
—	—	—	—	—	—	—
11 04	—	—	44 00	64 00	—	28
18 59	—	75	75 50	88 00	—	75
11 56	—	60	34 00	32 00	—	44
11 00	—	75	15 00	—	—	38
8 80	—	60	12 00	—	—	30
—	—	—	—	—	—	—
—	—	—	—	24 00	—	—
—	—	—	—	16 00	2 25	—
—	—	—	—	—	4 50	—
—	—	—	—	—	—	—
—	—	—	—	—	—	—
—	1 10	—	—	—	—	—
4 40	1 76	32	6 00	—	—	16
2 20	88	16	3 00	—	—	8
160 03	3 74	9 88	321 50	533 00	6 75	533.5
69 93	14 89					48 50

068072

JUNE 1980

BLADE COATER BROKE

DATE	UNCOATED	COATED	TOTAL	RED TRIAL UNCOATED	RED TRIAL COATED	RED TRIAL TOTAL
5-28-30	46 25	69 70	115 95			
29	10 00	16 50	26 50			
30	17 30	67 50	84 80			
2	14 00	44 50	58 50			
3	29 50	57 00	86 50			
4	25 00	61 50	86 50			
5	48 00	77 50	125 50			
6	44 50	158 50	203 00			
7	26 85	69 45	96 30			
8	17 70	115 50	133 20			
9	14 00	64 25	78 25			
10	4 50	56 80	61 30			
11	23 95	66 80	90 75			
12	17 75	82 00	99 75			
13	25 00	79 00	104 00			
14	11 50	53 75	65 25			
16	19 50	62 50	82 00			
17	30 50	77 00	107 50			
18	27 70	92 45	120 15			
19	35 10	109 00	144 10			
20	16 00	59 50	75 50			
21	35 65	98 40	134 05			
23	40 00	51 50	91 50			
24	47 70	60 00	107 70			
25	22 50	57 00	79 50	10 00	22 50	32 50
26	22 50	60 00	82 50			
27	26 50	50 50	77 00			
28	21 00	32 00	53 00			
29	21 50	68 00	89 50			
30	40 20	74 20	114 90			

5A 068073

Mill "C" CHEMICALS

FEBRUARY 1979

DATE	ALUM. GAL.	CLAY 3000# TANK	SIZE GAL X 9.2	CLINTON 675B LBS.	PARACOL GAL	STAZYME-J WAX BAGS X 100	STAYSIZE 112 LBS	TITANIUM LBS.	ANSILEX LBS.	DEFOAMER KOCH GAL	CP-7 GAL.	NALCO LBS.
1-29-79	8 00	330 00	20 70	-	-	140 00	-	14 00	5 50	15	1 00	1 4
1-30	5 50	270 00	-	-	-	108 00	-	27 50	13 75	15	75	1 4
31	7 00	180 00	20 70	-	-	42 00	-	17 50	7 75	15	75	1
2-1-79	7 50	150 00	41 40	-	-	28 00	-	21 50	12 00	15	50	1
2	5 50	120 00	20 70	-	-	14 00	-	13 50	9 00	15	50	1
3	5 00	210 00	20 70	-	-	-	-	9 75	6 50	10	25	1
5	5 00	300 00	20 70	-	-	142 00	-	71 25	29 25	15	75	1
6	8 00	360 00	-	-	-	104 00	-	91 00	37 00	15	100	1
7	4 50	330 00	20 70	-	-	60 00	10	76 50	32 00	15	100	1
8	5 00	240 00	20 70	-	-	70 00	-	68 75	29 75	15	100	1
9	7 00	600 00	20 70	-	-	14 00	-	36 00	18 00	15	100	1
10	7 00	900 00	20 70	-	-	-	-	36 00	18 00	10	75	1
12	7 00	900 00	20 70	-	-	114 00	-	55 25	27 50	15	125	1
13	5 00	150 00	20 70	-	-	28 00	-	48 00	24 00	15	50	1
14	7 00	360 00	20 70	-	-	123 00	-	35 00	21 00	15	100	1
15	7 00	330 00	20 70	-	-	80 00	-	66 00	-	-	-	-
16	8 00	240 00	20 70	-	-	40 00	-	97 75	53 75	15	75	1
17	5 00	180 00	-	-	-	40 00	-	89 25	43 00	10	100	
19	8 00	360 00	20 70	-	-	137 00	-	51 50	25 75	15	100	1
20	4 50	270 00	-	-	-	132 00	-	101 50	57 00	15	50	-
21	4 50	90 00	20 70	-	-	60 00	-	70 50	36 00	15	100	1
22	5 00	180 00	20 70	-	-	-	-	72 00	36 00	15	100	1
23	5 50	150 00	20 70	-	-	-	-	72 00	36 00	15	50	
24	4 50	120 00	20 70	-	-	-	-	48 00	24 00	10	100	1
	146 00	7200 00	434 70	—	—	1476 00	10	1212 00	604 50	325	16 75	21
						✓	✓			8.09	8.42	
										26 29	157 88	

SA 068075

GAL CP-7	LBS. NALCO 680	X LBS PARAMEL	TANK ALUM-ON-MACH	GAL CLAY-TANK	LBS Z OLEX	753 CLINSIZE	BAGS SODIUM NITRATE	X Douglas STARCH
100	144	-	73	3700	-	-	-	-
75	146	7500	2	2900	-	-	-	-
75	170	33900	3	2000	-	-	-	-
50	168	34240	3	2600	-	-	-	-
50	152	33780	2	900	-	-	-	-
25	110	18200	2	1900	-	-	-	-
75	110	-	2	2300	-	-	-	-
100	128	-	3	1800	-	-	-	-
100	116	-	2	2800	-	-	-	-
100	120	6000	2	2300	-	-	-	-
100	156	47040	3	1600	-	-	-	-
75	128	19060	3	1200	-	-	-	-
125	154	35480	4	800	-	-	-	-
50	128	92880	2	1400	-	-	-	-
100	148	2460	3	3600	-	-	-	-
-	-	-	-	-	-	-	-	-
75	126	-	3	2200	-	-	-	-
100	74	-	2	1700	-	-	-	4800
100	154	-	3	4600	-	-	-	-
50	-	-	2	3000	-	-	-	-
100	164	34500	2	1600	-	-	-	-
100	152	39360	1	1700	-	-	-	6000
50	-	34340	2	800	-	-	-	3600
100	124	31280	2	1500	-	-	-	1200
1875	2872	4,100 20 ✓	126	48900	-	-	-	15600
842		8%						✓
15788		32,802						

SA 068076

FEBRUARY 1979 Mill +2 "D" CHEMICALS

DATE	120 x TANK SIZE GAL	C-7 GAL	LBS. J 100# BAGS	100# BAG CLINCO 55	100 50# BAG TITANIUM	71-M GAL NALCO	CLAY COUNTER	SODIUM ALUMINATE	B-64 GLUE
1-29 79	4 80	2	-	176 00	100 00	1	-	-	-
1-30	4 80	1	-	112 00	-	1	-	-	-
31	4 80	2	-	144 00	100 00	24	-	-	-
2-1 79	3 60	2	-	112 00	110 00	27	-	-	-
3	9 60	1	-	96 00	93 00	-	-	-	-
7	3 60	3	-	128 00	170 00	1	5	1	-
6	3 60	2	-	112 00	133 00	30	3	1	-
8	3 60	2	-	96 00	105 50	21	5	1	-
9	3 60	1	-	96 00	101 00	18	5	1	-
10	7 20	-	-	64 00	110 00	-	-	-	-
12	2 40	1	-	112 00	110 00	1	-	-	-
13	3 60	3	-	80 00	100 00	1	-	-	-
14	4 80	1	-	64 00	105 00	18	-	-	-
15	3 60	1	-	112 00	100 00	6	-	-	-
16	3 60	2	-	96 00	105 00	6	-	-	-
17	2 40	1	-	48 00	75 00	-	8	1	-
19	7 20	1	-	224 00	146 00	-	-	-	-
20	7 20	-	-	128 00	181 50	-	-	3	-
21	7 20	1	-	128 00	168 00	-	-	-	-
22	7 20	1	-	128 00	165 00	1	-	3	-
23	9 60	1	-	112 00	171 00	-	-	2	-
24	3 60	2	-	80 00	200 00	1	-	-	-
	111 60	31		2[illegible] 00	2[illegible]	157	26	12	-

✓

SA 068077

FEBRUARY 1979 Mill "E" CHEMICALS

DATE	SOY FLOUR	H.T. CLAY	CASEIN	H.T CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX TK DOW 636	LATEX DRUM DOW 636	TSPP	ULTRAMARINE BLUE	PAREZ RESIN	RED BXP
29-30-31	-	-	24 20	575 00	286	-	132 00	-	154	-	-	-
1-2-3	-	-	25 30	600 00	299	-	138 00	-	161	-	-	-
5+6	-	-	17 60	400 00	208	-	96 00	-	112	-	-	-
7+8	-	-	14 30	350 00	169	-	78 00	-	91	-	-	-
9+10	-	-	16 50	400 00	195	-	90 00	-	105	-	-	-
12-13-14	-	-	26 40	600 00	312	-	144 00	-	168	20	-	
15-16-17	-	-	25 30	600 00	312	100	144 00	-	161	20	-	-
19-20-21	-	-	24 20	600 00	286	-	132 00	-	154	-	-	-
22-23	-	-	-	400 00	-	-	108 70	-	205	-	-	-
24	-	-	8 80	200 00	96	-	48 00	-	81	-	-	-
	-	-	182 60	4725 00	21 63	1 00	1110 70	-	~~1392 30~~	40	-	
							48 70		1392			
							53313					

SA 068078

PAREZ RESIN	RED BXP	#	GAL. AMMONIA	(Sodium Nitrate) SALT	BORAX	GAL. NOPCO 178	# FORMALY-DEHYDE	# PROCOTE PROTEIN	LATEX DOW 620 DM	STANLEY STACOTE 120	DYLEX LATEX	DM. SORNION LATEX
-	-		4 62	55 00	3 30	75	5 50	66 00	-	-	-	-
-	-		4 83	115 00	3 45	68	5 75	69 00	-	-	-	-
-	-		3 36	35 00	2 40	36	4 00	48 00	-	-	-	-
-	-		2 73	25 00	1 95	60	3 50	42 00	-	-	-	
-	-		1 85	75 00	2 10	55	3 50	42 00	-	-	-	-
-		1	4 56	80 00	3 60	1 10	6 00	72 00	-	-	-	-
-	-		4 83	90 00	3 30	67	5 50	66 00	-		-	-
-	-		4 62	80 00	3 30	67	5 50	66 00	-	-	-	-
-	-		15	—	—	90	5 25	26 00	—	—	—	—
-	-		1 68	20 00	1 20	41	2 00	24 00	—	—	—	—
-		1	33 23	575 00	24 60	6 69	46 50	521 00	—	—	—	—
			7.27			7.73						
			241 58			51 71						

SA 068079

Mach. 5+6

Mill C

Pulp Used In Hydropulper

DATE	481 DRYDEN SEMI BL.	462 NAHOLA	487 MARATHON	507 SUPERIOR	467 PR. GEORGE	477 CELGAR	520 CRESTBROOK	489 BRUNSWICK	327 WEST-VACO	481 KAMLOOPS	# of [illegible] TOTAL	497 DRYDEN F.B.
1-29 79	63	-	-	-	-	-	-	-	-	-	109	-
1-30	26	-	-	3	-	-	-	-	-	-	130	-
31	21	-	83	3	-	-	-	-	-	-	144	-
2-1	-	-	115	99	-	-	-	-	-	-	361	-
2	-	-	-	84	-	-	5	-	-	-	364	-
3	-	-	-	-	-	-	140	-	-	-	306	-
	(52910) 110	-	(96426) 198	(95823) 189	-	-	(75400) 145	-	-	-	1314	-
5	-	-	-	-	-	-	42	-	-	-	252	-
6	-	-	-	-	-	-	-	-	-	-	284	-
7	-	-	-	-	-	-	-	-	-	-	237	-
8	-	-	-	-	-	-	-	-	-	-	226	-
9	-	-	-	-	-	-	-	-	-	4	156	-
10	-	-	-	-	-	-	-	-	-	12	102	-
	-	-	-	-	-	-	(21840) 42	-	-	(7696) 16	1259	-
12	76	-	-	-	-	-	-	-	-	4	222	-
13	22	-	-	-	-	-	-	-	-	-	279	-
14	-	112	-	-	-	3	-	-	39	-	238	-
15	-	101	-	-	-	40	-	-	-	-	250	-
16	-	-	-	-	-	61	-	-	-	-	208	-
17	-	-	-	-	-	-	-	-	-	-	112	-
	(47138) 98	(98406) 213	-	-	-	(49608) 104	-	-	(12753) 39	(1970) 4	1309	-
19	-	-	-	-	-	-	-	-	-	-	230	-
20	-	84	-	-	-	8	-	-	-	-	188	-
21	-	49	195	-	-	8	-	-	-	-	252	-
22	-	32	-	-	-	118	-			20	176	
23	-	-	-	-	-	4	-	-	-	130	204	
24	-	-	-	-	-	-	-	-	-	-	115	-
	-	(76230) 165	(94965) 195	-	-	(65826) 138	-	-	-	(72150) 150	1165	-
	(100048) 208	(174636) 372	(191391) 295	(95823) 189	-	(115434) 242	(97240) 187	-	(12753) 39	(81770) 170	[illegible]	

# of 60	397	587	397	560	518	500	515	477	448	417
TOTAL	DRYDEN 7,B	GD PRAIRIE	EDDY	Buckeye	Alphanier	ALLIED SW.	D MTAR	ALLIED HW	PRINCE ALBERT	Potlatch
109	-	-	-	-	-	39	7	-	-	
130	-	-	-	-	-	62	39	-	-	
144	-	-	-	-	-	10	16	11	-	
361	-	-	145	-	-	2	-	-	-	
364	-	-	126	-	-	-	149	-	-	
206	-	-	-	-	-	-	66	-	-	
1314	-	-	(107587) 271	-	-	(52500) 113	(142005) 277	(5467) 11	-	
252	-	-	-	-	-	156	6	-	48	
284	-	-	-	-	-	182	-	-	102	
239	-	-	-	-	-	155	-	-	84	
226	-	-	5	-	-	131	-	-	90	
156	-	-	15	-	-	47	-	-	90	
102	-	-	-	-	-	36	-	-	54	
1259	-	-	(7940) 20	-	-	(353500) 707	(5070) 6	-	(233064) 468	
222	-	-	11	-	-	11	-	-	120	
279	-	-	161	-	-	-	-	-	96	
238	-	-	-	-	-	-	-	-	84	
250	-	7	-	-	-	-	-	-	102	
208	-	6	-	-	-	39	-	-	102	
112	-	3	-	-	-	43	-	-	66	
1309	-	(9392) 16	(68284) 172	-	-	(46500) 93	-	-	(283860) 570	
230	-	100	-	-	-	130	-	-	-	
188	-	4	-	-	-	92	-	-	-	
252	-	-	-	-	-	-	-	-	-	
176										6
204	-	-	-	-	-	-	-	-	9	61
115	-	-	-	-	-	-	-	-	19	96
1165	-	(61048) 104	-	-	-	(111000) 222	-	-	(13944) 28	(68134) 163
5047	-	(70440) 120	(183811) 463	-	-	(567500) 1135	(145745) 283	(5467) 11	(530868) 1066	(68134) 163

Mach. 7, 8 + 9

Mill D

February 1979 Pulp Used In Hydropulper

DATE	Superior	Kamloops	Simpson	Nanoela	Marathon	Crestbrook	Prairie	Allied SW	West UACO	Pr. George	Total	Allied HW
	567	481	397	462	487	520	587	500	327	Inter Co + 467		
1-29-79	50	–	–	–	–	–	–	58	–	–	248	
1-30	128	–	–	–	–	–	–	70	–	–	312	
31	6	–	–	–	–	–	–	140	–	–	324	
1	–	–	–	–	–	–	–	166	–	–	294	
2	–	–	–	–	–	–	–	204	–	–	254	
3	–	–	–	–	–	–	–	176	–	–	310	
	(93288) 184	–	–	–	–	–	–	(407004) 814	–	–	1842	(illegible) 2
5	28	–	–	–	–	–	–	112	–	–	344	
6	4	–	–	–	–	–	–	100	–	–	328	
7	–	–	–	–	–	–	–	80	–	–	280	
8	40	–	–	–	–	–	–	106	–	–	274	
9	128	–	–	84	–	–	–	76	–	–	336	
10	18	8	–	76	–	–	–	–	–	–	240	
	(110526) 218	(3548) 8	–	(73920) 160	–	–	–	(237120) 474	–	–	1702	(83496) 1
12	–	–	–	188	–	–	–	80	–	–	428	
13	–	–	–	240	–	–	–	–	–	–	396	–
14	–	–	–	48	–	–	–	–	–	36	320	–
15	–	–	–	–	–	–	–	–	–	156	288	–
16	–	–	–	2	–	–	80	92	–	62	290	–
17	–	–	–	66	–	–	52	156	–	–	274	–
	–	–	–	(251328) 544	–	–	(77484) 132	(164000) 328	–	(118618) 254	1996	(illegible)
19	–	48	–	162	–	–	18	–	–	–	285	–
20	–	64	–	28	–	–	52	16	–	–	373	–
21	–	–	–	–	134	–	16	122	–	–	368	
22	120	–	–	–	–	–	16	216	–	–	388	
23	62	144	–	–	–	–	108	34	–	–	348	–
24	–	–	–	–	–	–	72	–	–	–	276	–
	(92274) 182	(126136) 256	–	(87780) 190	(65258) 134	–	(155554) 282	(199000) 388	–	–	2020	–
	(976028) 584	(126984) 264	–	(413028) 894	(65258) 124	–	(243018) 414	(1002000) 2004	–	(118618) 254	7560	(illegible)
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

SA 068082

Total	497 Allied HW	477 Celgar	397 Dryden F.B.	489 Brunswick	397 Eddy	481 Dryden Semi Bl	475 Port Hudson	434 Fort Frances	512 Noral	452 Missoula	498 Prince Albert	507 Comtar
248	46	78	16	-	-	-	-	-	-	-	-	
312	8	90	16	-	-	-	-	-	-	-	-	
324	72	54	52	-	-	-	-	-	-	-	-	
294	56	36	36	-	-	-	-	-	-	-	-	
354	32	-	-	-	112	6	-	-	-	-	-	
310	48	2	2	-	40	-	-	-	-	-	42	
1842	(130214) 262	(124020) 260	(48434) 122	-	(60344) 152	(2886) 6	-	-	-	-	(20116) 42	
244	4	26	-	-	-	14	-	-	-	-	60	
328	36	74	18	-	-	-	-	-	-	-	76	
280	40	68	60	-	-	-	-	-	-	-	32	
274	20	16	36	-	-	-	-	-	-	-	56	
336	32	12	4	-	-	-	-	-	-	-	-	
240	36	16	8	-	-	-	-	-	-	-	78	
1702	(83496) 168	(101124) 212	(50022) 126	-	-	(6734) 14	-	-	-	-	(160356) 322	
428	40	16	-	-	-	-	-	-	-	-	104	
396	-	50	54	-	-	-	-	-	-	-	52	
320	-	52	24	-	88	-	-	-	-	-	72	
288	-	-	120	-	4	-	-	-	-	-	8	
290	-	-	54	-	-	-	-	-	-	-	-	
274	-	-	-	-	-	-	-	-	-	-	-	
1996	(19880) 40	(56286) 118	(100044) 252	-	(36524) 92	-	-	-	-	-	(117528) 236	
285	-	48	-	-	-	-	-	-	-	9	-	
373	-	176	-	-	-	-	-	-	-	37	-	
368	-	16	-	-	80	-	-	-	-	-	-	
388	-	18	-	-	-	-	-	-	-	-	-	
348	-	-	-	-	-	-	-	-	-	-	-	
276	-	-	-	-	-	-	-	-	-	-	156	48
2020	-	(123066) 258	-	-	(31760) 80	-	-	-	-	(21252) 46	(77688) 156	(24336) 48
7560	(253590) 470	(404496) 848	(198500) 500	-	(128628) 324	(9620) 20	-	-	-	(21252) 46	(376488) 756	(24336) 48

3661904

SA 068083

Mach 5+6
Mill C

FEBRUARY

Chemicals Used In Beater

DATE	Alum. #	Size #	Clay gal	Ansilex	Scm (3)	NALCO 680	Titanium (1)	Zealex	Ti-Pure (2)	Du-Pont (4)	Total
1-29 79	12 60	6 31	77 50	5 50	-	1 44	-	-	11 00	-	114 35
30	12 23	7 40	66 50	13 75	-	1 46	27 50	-	-	-	12[illegible] 84
31	16 08	10 06	23 25	9 75	7 50	1 70	12 00	-	-	-	8[illegible] 34
2-1	14 70	11 25	13 50	12 00	-	1 68	21 50	-	-	-	74 63
2	13 30	32 38	13 50	9 00	-	1 52	13 50	-	-	-	83 20
3	9 46	7 57	9 75	6 50	9 75	1 08	-	-	-	-	44 11
	78 37	74 97	204 00	56 50	17 25	8 88	74 50	-	11 00		525 47
5	9 80	6 50	43 00	30 00	33 00	1 12	37 00	-	-	-	162 42
6	11 90	7 50	52 00	37 00	40 95	1 36	-	-	32 50	-	153 21
7	10 15	6 48	44 00	32 00	-	1 16	-	-	43 50	33 00	170 29
8	10 68	7 19	35 00	29 75	-	1 22	26 25	-	42 00	-	152 09
9	13 65	10 50	-	18 00	-	1 56	-	-	36 00	-	79 71
10	11 20	8 75	-	18 00	-	1 28	-	-	36 00	-	75 23
	67 38	46 92	174 00	164 75	73 95	7 70	65 25	-	190 00	33 00	822 95
12	13 48	10 56	-	30 00	-	1 54	-	-	60 00	-	115 58
13	11 90	9 50	-	24 00	-	1 36	-	-	48 00	-	94 76
14	13 30	7 36	62 00	21 00	-	1 52	35 00	-	-	-	140 18
15	12 95	7 58	58 00	35 00	44 00	1 48	22 00	-	-	-	181 01
16	11 03	7 07	48 00	53 75	66 50	1 26	31 25	-	-	-	218 86
17	6 48	5 38	18 75	43 00	33 00	74	56 25	-	-	-	163 60
	69 14	47 45	186 75	206 75	143 50	7 90	144 50	-	108 00	-	913 99
19	15 93	8 45	70 25	25 75	14 00	1 54	31 50	-	6 00	-	173 42
20	12 95	5 58	64 00	57 00	41 50	1 48	60 00	-	-	-	242 51
21	14 35	9 06	17 00	36 00	76 50	1 64	-				148 55
22	13 30	9 35	12 00	36 00	-	1 52	72 00				144 17
23	14 00	12 60	12 00	36 00	72 00	1 60	-	-	-		148 20
24	10 85	10 03	8 00	24 00	48 00	1 24	-	-	-		102 12
	81 38	55 07	185 25	214 75	246 00	9 02	163 50	-	6 00	-	[illegible] 77
	296 27	224 41	748 00	642 75	4[illegible] 70	33 50	447 75		315 00	33 00	[illegible]
			10								
			748000								

5A 068084

Mach 7,8 + 9
Mill D

EBRUARY

Chemicals Used In Beater

DATE	Alum	Size	Clay	Ansilex	Scm	NALCO 680	Ax	TI-PURE	CAMEL WITE	CALICUM CARBONATE	Total	Titanium
1-29-79	19 55	17 90	49 60	78 50	141 50	2 55	-	14 50	-	-	324 10	-
30	24 00	30 46	39 70	82 00	153 00	2 63	-	3 00	-	-	334 79	-
31	23 45	17 45	70 60	41 00	115 00	2 85	-	-	-	-	290 35	-
2-1	25 38	21 95	111 70	39 50	73 00	3 05	-	-	-	-	267 58	[illegible]00
2	24 13	18 53	74 10	52 75	142 00	2 90	-	-	-	-	314 41	
3	21 51	18 60	88 70	50 13	91 25	2 58	-	-	-	-	272 77	-
	138 02	124 89	454 40	333 88	715 75	16 56	-	17 50	-	-	1804 00	3 00
5	23 45	25 43	43 60	55 00	108 50	2 67	-	-	-	-	258 65	-
6	21 50	17 10	46 50	70 50	133 00	2 58	-	-	-	-	291 18	-
7	22 63	18 98	58 70	81 25	144 50	2 72	-	-	-	-	328 78	-
8	22 13	17 58	56 20	50 25	76 50	2 66	-	17 50	-	-	242 82	-
9	20 90	16 55	65 40	48 00	107 00	2 55	-	-	-	-	260 40	-
10	17 83	17 40	47 90	62 25	109 00	2 24	-	-	-	-	256 62	-
	128 44	113 04	318 30	367 25	678 50	15 42	-	17 50	-	-	1638 45	-
12	16 15	13 35	51 00	33 00	55 00	2 01	-	-	57 00	-	227 51	-
13	25 00	26 18	69 30	57 50	125 75	3 00	-	-	-	-	366 73	-
14	22 14	24 06	50 98	73 50	138 00	2 67	-	-	-	-	311 35	-
15	21 38	19 48	42 40	110 75	185 50	2 57	-	-	-	-	382 08	-
16	22 75	17 55	56 35	106 50	122 00	2 73	-	25 00	-	-	365 38	2 50
17	18 88	14 78	114 05	49 88	74 25	2 73	-	16 50	-	-	291 07	-
	126 30	115 40	384 08	431 13	700 50	15 71	-	41 50	57 00	-	1884 12	12 50
19	24 35	19 80	89 60	76 50	125 25	3 06	-	20 00	-	-	358 56	
20	25 25	21 58	57 80	109 00	98 00	3 24	-	87 50	-	-	403 37	
21	27 00	19 20	28 30	78 00	55 50	3 24	-	111 00	-	-	322 24	-
22	26 75	27 35	95 00	62 00	39 50	3 21		42 00	-		289 81	-
23	25 20	13 35	70 60	41 50	11 00	1 74		40 00	-	-	203 39	
24	13 10	7 95	48 00	29 00	39 00	1 56	-	12 00	-	-	150 61	-
	141 65	103 2[illegible]	32[illegible] 30	396 00	36[illegible] 25	16 05	-	312 50	-	-	17[illegible] 9[illegible]	-
	534 41	4[illegible]6 56	1546 [illegible]	152[illegible] 26	2465 00	[illegible] 74	-	389 00	57 00		70[illegible] 5[illegible]	[illegible]
	✓	✓	10	✓	✓	✓		✓	✓	✓		✓
			1546080									

SA 068085

(3)

Total	Titanium	Zealex	Alpha-size
32410	-	-	-
33479	-	-	-
29035	-	-	-
36758	300	-	-
31441	-	-	-
27277	-	-	-
80400	300	-	-
25865	-	-	-
39118	-	-	-
32878	-	-	-
24282	-	-	-
26040	-	-	-
20662	-	-	-
163845	-	-	-
22751	-	-	-
4673	-	-	-
31135	-	-	-
38208	-	-	-
36538	1250	-	-
29107	-	-	-
88412	1200	-	-
35856	-	-	-
40237	-	-	-
32224	-	-	-
28981	-	-	-
20339	-	-	-
15061	-	-	-
72698	-	-	-
[illegible]55	1550	-	-
	✓	✓	✓

SA 068086

770 R+D Trials

FEBRUARY

Blade Coater Chemicals

DATE	LATEX 673 - GAL.	Defoamer D7-122	Stearate DC-111 gal.	Kelgem HV #	T.S.P.P. #	CLAY HT Wet gal.	Ammonia Gal.	Unitex	CAMEL WITE #	LATEX 6107 gal.	PG-208 #	74-B PENCORE
1-29-79	10 85	20	50	75	80	31 25	30	1 70	–	–	–	–
30	10 85	20	50	75	80	31 25	30	1 70	–	–	–	–
31-1	–	–	–	–	40	37 52	64	–	4 00	–	–	–
2	10 85	20	50	75	80	31 25	30	1 70	–	–	–	–
3	10 85	20	50	75	80	31 25	30	1 14	–	–	–	
5	10 85	20	50	75	80	31 25	30	1 70	–	–	6 00	
6	8 68	16	40	60	64	25 00	24	1 36	–	–	–	
7	10 85	20	50	75	80	31 25	30	–	–	–	–	
10	10 85	20	50	75	80	31 25	30	–	–	–	–	
12	8 68	82	40	60	1 47	25 00	57	34	–	–	–	
13	6 51	52	80	45	75	32 95	68	–	15 100	14 00	23 00	12 00
14	7 31	28	48	45	48	23 29	38	–	–	2 80	12 00	
15	13 02	24	60	90	96	37 50	36	–	–	–	–	–
16-17	21 70	40	1 00	1 50	1 60	62 50	60	34	–	–	–	–
19	7 68	16	40	60	80	25 00	24	1 36	8 050	–	1 00	7 00
20	10 85	20	50	75	80	31 25	30	1 70	–	–	–	–
21	8 68	16	40	60	64	25 00	24	1 36	–	–	–	–
	169 06	4 34	9 48	11 70	14 14	54 3 76	6 35	14 40	225 50	16 80	42 00	19 0
22	10 85	20	50	75	80	31 25	30	1 70	—	—	—	—
23	10 85	20	50	75	80	31 25	30	1 70	—	—	—	—
24	6 51	12	30	45	48	18 75	18	1 02	—	—	—	—
	1:1 27	4 8c	78	13 6	[illegible]	625 01	7 13	18 8c	225 50	16 80	[illegible]	[illegible]
	3.42	✓	8.09		✓	10.0	7.27			1.27		
	78513		7912			625010	5184		✓	7342		
	✓		✓							✓		
	812927											

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PG-208 #	74-B PENCORE	STAYSIZE 112 #	753 CLINSIZE 173B #	NOPCOCIDE 120	NOPCOCIDE K gal	CALGON T #	GLYCERINE	CELLOSIZE	CELLO # LOSE CMC-7L	SCRIP TEST 720 gal	7C-807	239 gal ATLAS
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	20 00	-	-	-	-	-	-	-		
-	-	-	74 00	-	-	-		-	-			
-	-	-	6 00	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-		-	-
6 00	-	-	14 00	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-		
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	50 00	-	-	-	-	-	-	282	83	-
23 00	12 00	-	-	-	25	40	39	50	1 50	-	-	81
12 00	-	-	-	-	4	14	-	-	30	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-		-
1 00	7 00	-	-	-	9	-	16	25	-	-	-	48
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
42 00	19 00	-	164 00	—	38	54	55	75	1 80	282	83	1 29
—	—	21 00	—	—	—	—	—	—	—	—	—	—
—	—	36 00	—	—	—	—	—	—	—	—	—	-
—	—	21 00	—	—	—	—	—	—	—	—	—	-
42 00	19 00	78 00	164 00	—	38	54	55	75	1 80	282	83	1 27
✓	✓	✓	✓	✓	100 / 380	✓	-		-	2[illegible] / 640		[illegible] / [illegible]

5A 068088

620 gal. LATEX	722 gal. LATEX	DZ-122NS #	BORAX #	LV PROTEIN #	SODIUM NITRATE	PREZ 707 gal.	H.T. CLAY DRY	Mississippi Clark
–	–	–	–	–	2.75	–	–	–
–	–	–	–	–	72.00	–	–	–
17.20	–	44	1.20	24.06	–	49	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	38.00	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	34.50
–	–	–	–	–	–	–	–	15.50
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
1.00	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
18.20	–	44	1.20	24.06	112.75	49	–	50.00
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
18.20	–	44	1.20	24.06	112.75	49	–	50.00
4.33						10.00		
78.81			✓	✓	✓	4.90		✓
✓	✓					✓	✓	

5A 068089

MARCH 1979

Mill "C" CHEMICALS

DATE	GAL ALUM.	3000# BANK CLAY	GAL x 9.2 SIZE	6783 LBS CLINTON	GAL WAX PARACOL	BAGS x 100 STAZYME-J	112 x 100 LBS. STAYSIZE	LBS TITANIUM	LBS ANSILEX	KOCH DEFOAMER	GAL CP-7	LBS NALCO-68
2-26 79	6.50	30000	2116	-	-	1600	1600	8450	4225	15	75	15
27	5.00	21000	2116	-	-	2000	-	6600	3300	15	100	16
28	7.50	45000	2116	-	-	1000	1000	9850	3300	15	50	15
3-1	5.00	42000	2116	-	-	2300	600	8700	3300	10	50	15
2	3.50	30000	4232	-	-	3500	-	6600	3300	15	75	14
3	6.00	24000	2116	-	-	-	-	5700	2750	10	50	12
5	7.50	45000	-	-	-	12400	1600	10050	4450	15	75	15
6	7.00	45000	2116	-	-	12000	-	10200	5700	15	75	14
7	5.50	27000	2070	-	-	8600	-	8350	-	15	100	1
8	5.00	21000	2070	-	-	8000	-	7350	-	15	25	1
9	3.00	24000	2070	-	-	8000	-	5750	3300	15	25	13
10	5.00	21000	2116	-	-	4800	-	3200	1400	15	50	1
12	8.00	18000	2116	-	-	11600	-	3350	1800	-	100	1
13	6.50	15000	2116	-	-	4800	-	3000	1800	15	50	1
14	6.00	21000	2116	-	-	4800	-	3000	1800	15	75	1
15	2.50	27000	2116	-	-	7200	-	9850	4600	15	25	1
16	5.50	15000	2116	-	-	5200	-	7500	3600	15	75	1
17	7.50	18000	2116	-	-	-	-	2625	1575	10	75	1
19	3.50	27000	2116	-	-	11200	1600	3250	1950	15	50	1
20	3.00	30000	2116	-	-	4800	-	2750	1650	15	25	1
21	5.50	33000	2116	-	-	9600	-	7575	3850	15	25	1
22	5.50	33000	-	-	-	10800	-	3950	2800	10	100	1
23	5.00	33000	2116	-	-	4800	-	2500	1500	15	50	1
24	3.00	12000	2116	-	-	-	-	2775	1710	10	-	1
26	7.50	1000	2116	-	-	11800	-	5000	3250	15	50	1
27	3.50	12000	4232	-	-	3700	-	4400	1200	15	25	1
28	5.00	27000	2116	-	-	8500	-	8550	4450	15	25	1
29	6.00	24000	2116	-	-	9600	1000	5925	3400	15	50	
30	5.00	27000	2116	-	-	10600	1200	6000	3500	15	50	1
31	2.50	21000	2116	-	-	2400	-	4800	2825	10	25	
	[illegible]	[illegible]	[illegible]	-	-	[illegible]	[illegible]	[illegible]	[illegible]	3276	[illegible]	

✓ ✓

SA 068090

GAL CP-7	LBS. NALCO-680	LBS. PARAMEL	TANK ALUM-ON-TANK	GAL CLAY TANK	LBS. ZOLEX	753 CLINSIZE	BAGS SODIUM NITRATE	100x LBS. DOUGLAS STARCH
75	150	105.00	2	22.00	-	-	-	144.00
1.00	168	346.00	2	10.00	-	-	-	48.00
50	180	15.00	3	47.00	-	-	-	70.00
50	180	123.40	2	33.00	-	-	30	84.00
75	148	322.20	1	17.00	-	-	60	15.00
50	126	259.40	2	15.00	-	-	-	-
75	136	-	2	41.00	-	-	-	-
75	140	-	3	37.00	-	-	-	-
1.00	128	-	2	25.00	45.50	-	-	-
25	124	-	2	25.00	44.50	-	-	-
25	132	-	1	32.00	-	-	-	-
50	123	-	2	20.00	-	-	-	-
1.00	180	294.20	3	13.00	-	-	-	-
50	192	256.80	3	16.00	-	-	-	-
75	190	422.20	2	19.00	-	-	-	-
25	136	-	1	35.00	-	-	-	-
75	164	121.80	2	16.00	-	-	-	-
75	126	213.60	2	17.00	-	-	-	-
50	168	355.80	COUNTER NOT WORKING	18.00	-	-	-	-
25	162	360.80	COUNTER NOT WORKING	36.00	-	-	-	-
25	130	-	2	35.00	-	-	-	-
100	108	-	2	32.00	-	-	-	-
50	136	233.60	6	30.00	-	-	-	-
-	159	284.20	1	12.20	-	-	-	-
50	176	311.20	-	9.80	-	-	-	-
25	188	311.80	COUNTER NOT WORKING	12.00	-	-	-	-
25	130	18.80	NOT WORKING	29.00	-	-	-	-
50	112	-	2	26.00	-	-	-	-
50	120	-	2	31.00	-	-	-	-
25	98	-	1	22.00	-	-	-	-
1625	44.10	4355.80	53	733.00	90.00	-	90	361.00
13683		348.46						

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MARCH 1979 Mill "D" CHEMICALS

DATE	120 X TANK C-7 SIZE GAL	GAL	LBS J100# Bag	100# Bag CLINCO 65	50# Bags Titanium	71-M GAL NALCO	CLAY COUNTER	SODIUM ALUMINATE	B-64 GLUE
2-26-79	500	3	-	20200	11800	-	4	1	-
27	300	3	3200	9600	15800	20	2	1	-
28	320	4	1600	6400	11000	12	-	-	-
3-1-79	200	3	-	12800	12350	-	-	1	-
2									
3	-	2	-	6400	7950	-	-	2	-
5	-	2	-	14400	10500	18	-	-	-
6	-	2	-	9600	10250	1	-	-	-
7	480	2	-	8000	10000	30	-	-	-
8	360	2	-	12800	11250	6	-	-	-
9	600	3	-	11200	11500	6	-	-	-
10	480	2	-	6400	16650	6	5	1	-
12	720	3	-	14200	12000	1	-	-	-
13	120	2	-	11400	13100	-	-	-	-
14	720	3	-	10800	15250	1	-	3	-
15	720	2	-	9600	19200	-	-	1	-
16	720	3	-	12800	19200	-	-	1	-
17	120	2	-	3200	10250	9	-	-	-
19	400	3	1600	19200	12600	18	5	1	-
20	480	3	-	14400	12250	2	3	1	-
21	480	4	-	9600	12000	42	4	1	-
22	400	3	-	12800	4850	42	5	-	-
23	360	3	-	14400	10850	27	5	1	-
24	-	3	-	3200	2200	-	-	3	-
26	360	3	-	20800	10250	24	-	-	-
27	360	3	-	11200	10000	15	-	-	-
28	440	3	-	11400	11000	-	-	-	-
29	480	3	-	11200	11500	39	-	-	-
30	480	3	-	11200	10350	18	-	-	-
31	360	2	-	4800	8500	6	4	1	-
	[illegible]	79	64	324000	52200	343	77	19	-

SA 068092

Gal.

CLAY ROTO-DIP USAGE

DATE	#5	#6	TOTAL
2-26	2723	4141	6864
27	3996	2787	6783
28	4051	4002	8053
3-1	4749	4813	9562
2	4283	4471	8754
3	4510	4985	9495
5	4786	5564	10350
6	4496	7024	11520
7	2972	4514	7486
8	3360	3327	6687
9	3909	3170	7079
10	3290	3776	7066
12	2666	2365	5031
13	2880	3193	6073
14	3515	4334	7849
15	4080	4502	8582
16	1972	2619	4591
17	1568	6330	7898
19	2465	not working	2465
20	3234	2300	5534
21	3234	2391	5625
22	2660	not working	2660
23	2980	261	3241
24	3040	480	3520
26	3098	830	3928
27	2736	1164	3900
28	2510	2209	4719
29	1058	4317	5375
30	444	4560	5004
31	-	3280	3280
			1359.74

SA 068093

Peryant Coating Chem.

MARCH 1979 Mill "E" CHEMICALS

DATE	SOY FLOUR	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX DOW 636	LATEX Dr. DOW 636	TSPP	ULTRA. BLUE	PAREZ RESIN	RED BXP	#
2-27+28	-	-	16.50	375.00	1.95	-	90.00	-	1.05	-	-	-	
1-2+3	-	-	24.20	550.00	2.86	1.00	132.00	-	1.54	-	-	-	
5+6	-	-	16.50	375.00	1.95	-	90.00	-	1.05	-	-	-	
7+8	-	-	16.50	400.00	1.95	-	90.00	-	1.05	-	-	-	
9+10	-	-	5.50	175.00	.65	1.00	30.00	-	.75	-	-	-	
12+13	-	-	6.60	200.00	.78	1.00	30.00	-	.42	-	-	-	
14+15	-	-	17.60	425.00	2.08	-	96.00	-	1.12	-	-	-	
16+17	-	-	15.40	400.00	1.82	-	84.00	-	1.88	-	-	-	
19+20	-	-	16.50	375.00	1.95	-	90.00	-	1.05	-	-	-	
21+22	-	-	17.60	425.00	2.08	-	102.00	-	1.12	20	-		/
23+24	-	-	17.60	424.00	2.08	-	105.00	-	1.72	-	-		/
26+27	-	-	17.60	425.00	1.42	-	108.00	-	1.12	20	-	-	
28+29	-	-	19.80	500.00	3.00	-	108.00	-	1.26	-	-	-	
30+31	-	-	15.40	350.00	1.82	1.00	84.00	-	1.92	-	-	-	
	-	-	[illegible]	[illegible]	[illegible]	4.00	[illegible]	-	17.05	[illegible]	-		
			X	X	X	X	[illegible] X		X	✓			

SA 068094

PAREZ RESIN	RED BXP	#	GAL AMMONIA	Sodium Nitrate SALT	BORAX	GAL NOPCO 178	# FORMALYDEHYDE	# PROCOTE PROTEIN	LATEX DOW 620 Dm	STANLEY STACOTE 120	Dylex LATEX	Dm SORNION LATEX
-	-		315	9000	225	45	375	4500	-	-	-	
-	-		462	11000	330	85	550	6600	-	-	-	-
-	-		315	7500	225	85	375	4500	-	-	-	-
-	-		315	-	225	60	375	4500	-	-	-	-
-	-		105	-	75	45	125	1500	-	-	-	-
-	-		126	3500	90	65	150	1800	-	-	-	-
-	-		336	8000	240	86	400	4800	575	-	-	-
-	-		294	7000	210	78	350	4200	-	-	-	-
-	-		315	3000	225	76	375	4500	-	-	-	-
-		1	336	4000	240	103	400	4800	-	-	-	-
-		1	336	8000	240	76	400	4800	-	-	-	-
-	-		336	8000	240	71	400	4800	-	-	-	-
-	-		378	4500	270	68	450	5400	-	-	-	
-	-		294	7000	210	76	350	4200	3575	-	-	-
-		2	[illegible]63	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-	-	
		✓	30972		✗	[illegible]77	✗	✗	✓			
			✗	✗		✗						

819027

SA 068095

MACH 5+6
mill c

MARCH 1979 Pulp USED IN Hydropulper

DATE	DRYDEN SEMI BL 481	NAHOLA 462	MARATHON 487	SUPERIOR 507	Pr George 467	Celgar 477	Crestbrook 520	Brunswick 489	West-VACO 327	Kamloops 481	Total	DRYDEN ZB 497
2-26-79	-	-	-	-	-	-	-	-	-	144	407	-
27	-	-	-	-	-	5	268	-	-	72	345	-
28	-	-	-	-	10	393	-	-	-	-	403	-
3-1	-	-	-	-	248	36	-	-	-	-	422	-
2	-	-	114	-	-	-	-	-	-	-	333	-
3	-	-	107	-	-	-	-	-	-	-	[illegible]	
	-	-	(107627) 221	-	(120486) 258	(207018) 434	(139360) 268	-	-	(103896) 216	2.25	-
5	-	-	-	-	-	-	38	-	-	-	199	-
6	-	-	-	-	-	-	125	-	-	-	307	-
7	-	-	-	-	-	-	54	-	-	-	298	
8	-	-	-	72	-	18	-	-	-	-	290	-
9	-	-	-	-	-	90	-	-	-	-	245	-
10	-	134	-	-	-	60	-	-	-	-	249	-
	-	(61908) 134	-	(36504) 72	-	(80136) 168	(112840) 217	-	-	-	159	-
12	-	-	-	-	-	80	-	-	-	-	463	-
13	-	-	-	-	-	-	-	-	-	-	435	98
14	165	-	-	-	-	-	-	-	-	-	492	-
15	-	-	-	-	-	35	-	-	-	-	384	
16	50	-	-	-	-	248	-	-	-	-	379	-
17	16	-	-	-	-	253	-	-	-	-	348	-
	(111111) 231	-	-	-	-	(293832) 616	-	-	-	-	2501	(31906) 98
19	-	-	-	88	32	215	-	-	-	-	430	-
20	-	-	-	124	96	-	25	-	-	-	366	-
21	-	-	-	-	96	-	65	-	-	-	328	
22	-	-	-	24	68	-	91	-	-	-	273	
23	-	-	-	72	-	-	182	-	-	-	328	-
24	-	-	-	84	-	-	200	-	-	-	314	
	-	-	-	(205884) 412	(136364) 292	(102555) 215	(292760) 563	-	-	-	2039	-
26	-	-	-	-	-	148	100	-	-	-	381	-
27	-	-	-	-	-	80	-	-	-	-	402	-
28	-	-	121	-	-	-	-	-	-	-	[illegible]	
29	132	-	68	-	-	-	-	-	-	-	285	5
30	69	-	-	-	-	-	-	-	-	-	289	
	(155844) 324	-	(192043) 189	-	-	(108756) 228	(52000) 100	-	-	-	1882	(21835) 5
	(266955) x 555	(61908) x 134	(199670) x 410	(245388) x 484	(256850) x 550	(792297) x 661	(596960) x 148	-	-	(103896) x 216	10.33.	(60141) x 15

[redacted]

SA 068096

Total	397 Dryden ZB	587 Gd. Prairie	397 Eddy	560 Buckeye	518 Alphamice	500 Allied SW	515 Domtar	477 Allied HW	478 Pr. Albert	418 Potlatch	510 Pontiac
407	–	–	–	–	–	–	–	–	101	162	
345	–	–	–	–	–	–	–	–	–	–	
403	–	–	–	–	–	–	–	–	–	–	
422	–	–	–	–	–	–	–	–	–	138	
333	–	65	–	–	–	–	–	–	–	66	
315	–	–	208	–	–	–	–	–			
[illegible]	–	(38155) 65	(182576) 208	–	–	–	–	–	(150012)	(152988)	(114580) 88
199	–	–	10	–	–	32	–	–	119	–	
309	–	–	–	–	–	82	–	–	102	–	–
298	–	–	84	–	–	160	–	–	–	–	–
290	–	–	28	–	–	172	–	–	–	–	–
245	–	–	–	–	–	155	–	–	–	–	–
249	–	–	–	–	–	55	–	–	–	–	–
1590	–	–	(484334) 122	–	–	(328000) 656	–	–	(1100038) 221	–	–
463	–	50	219	–	–	82	–	–	32	–	–
435	98	136	–	–	–	105	–	–	96	–	–
492	–	34	–	–	–	111	–	–	182	–	–
384	–	–	–	–	–	142	–	–	207	–	–
379	–	–	–	–	–	81	–	–	–	–	–
348	–	–	–	–	–	79	–	–	–	–	–
2501	(38906) 98	(129146) 220	(86943) 219	–	–	(300000) 600	–	–	(2574466) 517	–	–
430	–	–	–	–	–	95	–	–	–	–	–
366	–	–	–	–	–	109	–	12	–	–	–
328	–	–	–	–	–	139	–	98	–	–	–
273	–	–	–	–	–	90	–	–	–	–	–
328	–	–	–	–	–	54	–	–	–	–	–
314	–	–	–	–	–	30	–	–	–	–	–
2039	–	–	–	–	–	(268500) 517	–	(19880) 40	–	–	–
381	–	–	–	–	–	57	–	–	126	–	–
402	–	–	–	–	–	66	–	–	268	–	–
305	–	46	–	–	–	54	–	16	102	–	–
289	95	68	–	–	–	32	–	–	–	–	–
1882	(218335) 55	(1426441) 129 243	–	–	–	(57730) 231	–	(7952) 16	(2471000) 496	–	–
[illegible]	(10741) 152	(209936) 5[illegible]	(1217953) 5[illegible] 40	–	–	(1002000) 1144	–	(278332) 56	(1643832) 325	(1529882) 266	(114580) 88

SH 868897

Mach. 7, 8 + 9
Mill D

MARCH 1979 Pulp Used In Hydropulper

DATE	Superior (507)	Kamloops (481)	Simpson (397)	Dahoda (462)	Marathon (487)	Crestbrook (520)	Gd. Prairie (587)	Allied SW (500)	West Vaco (327)	Pr. George (467)	Total	Allied HW (497)
2-26-79	118	-	-	-	-	-	-	-	-	-	276	-
27	-	146	-	-	-	-	36	-	-	-	242	-
28	-	146	-	-	-	-	42	-	-	-	246	
3-1	-	38	-	-	-	-	66	-	-	-	252	-
2	-	-	-	-	-	-	60	78	-	-	300	-
3	-	-	-	-	-	-	-	86	-	-	196	-
	(59826) 118	(158730) 330	-	-	-	-	(119743) 204	(82000) 164	-	-	1510	-
5	-	-	-	-	-	-	-	96	-	-	242	-
6	-	-	-	-	-	-	-	74	-	-	272	26
7	18	-	-	-	-	-	-	120	-	-	246	4
8	12	-	-	20	-	-	-	92	-	-	228	8
9	32	-	-	180	-	-	-	-	-	-	352	-
10	-	-	-	196	-	-	-	-	-	-	342	-
	(31434) 62	-	-	(182952) 396	-	-	-	(191000) 382	-	-	1680	74
12	-	-	-	50	-	-	-	84	-	92	286	-
13	-	-	-	48	-	-	-	-	-	48	282	14
14	-	-	-	92	-	-	30	12	-	-	292	
15	-	-	-	24	-	-	28	60	-	-	300	8
16	-	-	-	-	-	-	12	120	-	-	276	-
17	-	60	-	-	-	-	-	84	-	-	216	-
	-	(28800) 60	-	(98868) 214	-	-	(41090) 70	(180000) 360	-	(65380) 140	1652	(1928) 24
19	-	84	-	-	-	-	-	124	-	-	276	-
20	-	150	-	-	-	-	-	172	-	-	338	
21	20	200	-	-	-	-	-	96	-	-	360	
22	88	-	-	-	-	-	-	260	-	-	348	
23	8	-	-	-	-	94	-	156	-	-	278	
24	-	-	-	-	-	38	-	164	-	-	240	
	(58812) 116	(208754) 434	-	-	-	(68640) 132	-	(186000) 972	-	-	1840	
26	-	-	-	-	-	32	-	96	-	-	342	
27	56	-	-	-	-	-	-	-	-	114	288	
28	87	-	-	-	-	-	-	4	-	-	287	
29	28	-	-	-	-	-	32	44	-	-	236	
31	-	-	-	-	-	-	-	64	-	-	264	30
30	-	-	-	-	-	-	-	42	-	-	264	
	(137397) 271	-	-	-	-	(16640) 32	(18784) 32	(125000) 250	-	(53238) 114	1781	(21863) 4
	(287469) x 567	(396344) x 24	-	(281820) x 610	x	(85280) x 164	(179622) x 306	(1064000) 21 x 28	-	(118618) x 254	8463	(1[illegible]) x 4[illegible]

[redacted]

SA 068098

		497	477	397	489	397	481	475	434	512	462	492	267
	Total	ALLIED HW	Celgar	Dryden FB	Brunswick	Eddy	Dryden Semi BL	Port Hudson	Fort Frances	NorAL	Missoula	Pr ALBERT	Domtar
	2.76	–	74	–	–	–	–	–	–	–	–	–	84
	2.46	–	64	–	–	–	–	–	–	–	–	–	–
	2.46	–	52	–	–	–	–	–	–	–	–	–	–
	2.52	–	16	–	–	132	–	–	–	–	–	–	–
	3.00	–	–	108	–	54	–	–	–	–	–	–	–
	1.96	–	–	84	–	–	–	–	–	–	14	–	–
	15.10	–	(98262) 206	(76224) 192	–	(73842) 186	–	–	–	–	(6168) 14	(5176) 3	(illegible) 84
	2.40	–	44	–	–	–	–	–	–	–	12	58	–
	2.72	26	60	–	–	–	–	–	–	–	–	112	–
	2.46	40	28	–	–	–	–	–	–	–	–	40	–
	2.28	8	32	–	–	–	–	–	–	–	–	64	–
	3.52	–	20	–	–	40	–	–	–	–	–	80	–
	3.42	–	–	–	–	140	–	–	–	–	6	–	–
	16.80	(36778) 74	(87763) 184	–	–	(71460) 180	–	–	–	–	(8316) 18	(illegible) 384	–
3	2.86	–	–	–	–	14	–	–	–	–	14	–	32
8	2.82	14	–	–	–	–	–	–	–	–	6	42	124
	2.92	2	–	–	–	–	–	–	–	–	–	156	–
	3.00	8	–	10	–	–	–	–	–	–	–	170	–
	2.76	–	–	14	–	–	–	–	–	–	–	130	–
	2.16	–	–	12	–	–	–	–	–	–	–	60	–
)	16.52	(11928) 24	–	(14292) 36	–	(5558) 14	–	–	–	–	(9240) 20	(277884) 558	(illegible) 156
	2.76	–	–	10	–	–	–	–	–	–	–	58	–
	3.38	6	–	2	–	–	–	–	–	–	–	8	–
	3.60	–	20	24	–	–	–	–	–	–	–	–	–
	3.48	–	–	–	–	–	–	–	–	–	–	–	–
	2.78	–	14	–	–	–	–	–	–	–	6		–
	2.40	–	26	–	–	–	–	–	–	–	12		–
	18.40	(29582) 6	(278620) 60	(14292) 36	–	–	–	–	–	–	(8316) 18	(32368) 66	–
	3.42	18	87	106	–	–	–	–	–	–	14	–	–
	3.88	4	88	26	–	–	–	–	–	–	–	–	–
	3.87	–	96	–	–	–	–	–	–	–	–	–	–
	3.96	–	132	–	–	100	–	–	–	–	–	–	–
	2.64	30	174	–	–	–	–	–	–	–	–	–	–
	2.64	–	222	–	–	–	–	–	–	–	–	–	–
	17.81	(21868) 44	(377784) 792	(52402) 132	–	(39700) 100	–	–	–	–	(6468) 14	–	–
	9.12	(13556) 48	(592434) 2427	(172212) 201	–	(190360) 480	–	–	–	–	(38808) 84	(507260) 12	(illegible) 40

Mach 5+6
Mill C

MARCH 1979

CHEMICALS USED IN BEATER

DATE	Alum. #	Size #	CLAY GAL	Ansilex	Scm	NALCO 680	Titanium	Zealex	Ti-Pure	DU-PONT	TOTAL	AX
	1,5				2 GLIDDEN		1		3	4		5
2-26-79	1313	8'77	4800	4225	7400	150	1050	-	-	-	17755	-
27	1470	1376	1100	3300	-	168	6600	-	-	-	14614	-
28	1575	870	7900	3300	9850	180	-	-	-	-	2[illegible]615	-
3-1	1575	985	5500	3300	2100	180	6600	-	-	-	20240	-
2	1295	1463	1100	3300	6600	148	-	-	-	-	13906	-
3	1103	1338	950	2850	5700	126	-	-	-	-	12067	-
	8331	6849	21350	20275	31650	952	14250	-	-	-	103657	-
5	1190	678	5850	4450	10050	136	-	-	-	-	22264	-
6	1225	695	7100	-	10200	140	-	5700	-	-	25060	-
7	1120	741	5750	-	8350	128	-	4550	-	-	20639	-
8	1085	760	4400	2200	7300	124	-	2250	-	-	18119	-
9	1155	848	5000	3300	5750	132	-	-	-	-	16185	-
10	1076	754	5000	1438	3162	123	-	-	-	-	11653	-
	6851	4476	33100	11388	44812	783	-	12500	-	-	113910	-
12	1575	1451	1800	1800	3350	180	-	-	-	-	10156	-
13	1680	1590	1800	1800	3000	192	-	-	-	-	10062	-
14	1663	1572	1800	1800	3000	190	-	-	-	-	10025	-
15	1190	550	5900	4600	7000	136	2850	-	-	-	22456	-
16	1435	965	3450	3600	6500	164	-	-	1000	-	17114	-
17	1086	823	3125	1575	-	124	-	-	2625	-	9358	-
	8629	6981	17875	15175	22850	986	2850	-	3625	-	78971	-
19	1470	985	5300	1950	-	168	-	-	3250	-	13123	-
20	1418	936	7550	1650	-	162	-	-	3750	-	14466	-
21	1156	699	5525	3850	-	132	4725	-	2850	-	18937	-
22	945	625	4500	2800	-	108	1050	-	2900	-	[illegible]	-
23	1190	1100	1500	1500	-	136	-	-	2500	-	7736	-
24	1291	1288	1913	1713	-	159	-	-	2788	-	9253	-
	7570	5633	26288	13463	-	865	5775	-	17038	-	76632	-
26	1340	1637	-	2250	-	176	-	-	5000	-	10617	-
27	1645	1763	-	2000	-	188	-	-	4400	-	9996	-
28	1138	953	4700	4450	-	130	-	-	6600	-	11871	[illegible]
29	1864	1068	3388	3950	-	146	-	-	-	-	15669	[illegible]
30	1050	1375	4000	3500	-	120	-	-	-	-	16045	[illegible]
	7247	7835	15750	18575	-	828	-	-	16000	-	85310	1897
	38628	31774	114363 / 171544	78876	99312	4414	22875	12500	36663	-	458380	1897

SH

001800

Total	AX
197 55	—
140 14	—
236 75	—
202 40	—
139 06	—
120 67	—
1036 57	—
223 54	—
250 60	—
206 39	—
181 19	—
161 85	—
115 53	—
1139 10	—
101 56	—
100 62	—
100 25	—
222 56	—
171 14	—
93 58	—
789 71	—
131 23	—
144 66	—
189 37	—
27 28	—
79 26	—
92 52	—
766 32	—
106 17	—
99 96	—
198 71	19 50
156 69	62 25
130 12	48 00
160 45	60 00
852 10	189 75
1582 80	189 75

496586

SA 068101

Mach 7,8 + 9
Mill D
March 1979

CHEMICALS (1) USED IN BEATER (2)

DATE	ALUM #	SIZE #	CLAY GAL	ANSILEX	SCM	NALCO 680	AX	TI-PURE	CAMEL WITE	CALICUM CARBONATE	TOTAL	Titaniu
2-26 79	20.25	21.65	35.10	93.00	53.50	2.43	-	77.50	-	-	303.43	-
27	16.26	14.83	26.45	93.25	85.50	1.97	-	25.50	-	-	308.76	45
28	17.25	15.53	14.40	111.00	196.50	2.07	-	-	-	-	356.75	-
3-1	18.50	20.45	14.40	79.50	135.50	2.22	-	-	-	-	270.57	-
2	16.55	6.60	24.60	55.50	117.00	2.01	-	18.00	-	-	243.48	-
3	12.36	-	12.90	26.25	78.75	1.87	-	-	-	-	134.46	-
	101.17	79.06	127.85	458.50	666.75	12.57	-	121.00	-	-	1617.45	45
5	17.60	-	9.60	35.50	91.50	2.31	-	-	-	-	159.90	-
6	16.09	.30	28.55	55.25	55.63	2.42	-	78.00	-	-	241.22	-
7	13.35	4.30	22.60	30.00	65.75	2.04	-	-	-	-	140.01	-
8	21.00	31.80	29.80	114.50	163.25	2.61	-	-	-	-	362.96	-
9	17.45	21.98	16.10	70.00	69.50	2.01	-	12.00	-	-	209.04	-
10	31.40	31.13	39.80	105.50	162.00	3.48	-	4.00	-	-	377.31	-
	116.89	89.51	146.45	410.75	607.63	14.87	-	94.00	-	-	1490.44	-
12	20.56	26.10	13.00	75.00	49.50	2.94	-	35.00	-	-	252.10	30
13	26.60	31.00	24.50	85.50	13.25	2.85	-	52.50	-	-	236.63	-
14	20.50	19.80	7.75	113.00	196.50	2.46	-	6.00	-	-	366.01	-
15	20.80	17.00	20.50	104.00	104.00	2.46	-	-	-	-	338.76	70
16	19.75	17.03	15.35	108.00	195.50	2.37	-	-	-	-	358.00	-
17	15.25	13.03	10.20	83.00	134.50	1.83	-	-	-	-	257.81	-
	123.46	123.96	91.30	568.50	693.25	14.91	-	93.50	-	-	1809.51	100
19	20.50	17.50	31.80	123.50	200.00	2.46	-	-	-	-	395.76	-
20	30.20	30.83	52.70	89.50	144.00	3.27	-	-	-	-	350.50	-
21	22.30	19.43	62.90	72.00	119.00	2.85	-	-	-	-	298.48	-
22	22.65	19.43	87.90	119.00	95.50	2.85	-	-	-	-	358.33	11
23	20.85	19.58	69.70	75.00	11.50	2.67	-	69.25	12.00	-	313.05	[illegible]
24	14.13	11.45	15.20	14.00	16.00	1.70	-	-	40.50	-	120.98	[illegible]
	130.63	118.22	320.20	493.00	586.00	15.80	-	69.25	52.50	-	1837.10	51
26	29.41	24.71	47.80	73.50	134.00	3.05	-	6.00	-	-	322.47	-
27	15.90	20.63	34.55	91.00	73.00	2.19	-	57.50	-	-	294.77	-
28	18.15	27.93	38.40	98.00	124.50	2.31	-	-	-	-	309.29	-
29	19.80	26.03	54.00	70.00	52.00	2.55	-	37.50	-	-	261.88	-
30	14.53	19.73	46.15	44.25	78.50	2.33	-	-	-	-	206.19	-
	17.95	21.15	40.00	76.00	123.50	2.31	-	-	-	-	280.91	-
	115.74	138.18	261.90	454.75	585.50	14.44	-	101.00	-	-	1671.51	-
	587.89	548.93	947.70	2385.50	3139.13	72.59	-	478.75	52.50	-	8425.81	[illegible]

142.55

SA 068102

[redacted]

Total	Titanium	Zealex	Alpha-size
30343	–	–	–
30876	45.00	–	–
35675	–	–	–
27057	–	–	–
24348	–	–	3.22
13446	–	–	2.37
617.45	45.00	–	5.55
15990	–	–	3.39
24122	–	–	4.98
14001	–	–	1.97
36296	–	–	–
20904	–	–	–
37731	–	–	–
49044	–	–	10.34
25210	30.00	–	–
23663	–	–	.43
36601	–	–	–
33876	70.00	–	–
35800	–	–	–
25781	–	–	–
18093	100.00	–	.43
39576	–	–	–
35050	–	–	–
27848	–	–	–
35833	11.00	–	–
31305	32.50	–	–
12098	8.00	–	–
183710	51.50	–	–
32247	–	–	–
29477	–	–	–
30929	–	–	–
26188	–	–	–
28091	–	–	–
67151	–	–	–
42581	196.50	–	16.32

289,966

SA 068103

No R&D X TRIALS = 16

X x 19 x 100 x 127

BLADE COATER CHEMICALS

MARCH DATE	LATEX 673 GAL	Defoamer D7-122 #	Stearate DC-1119 #	Kelgem HV #	TSPP #	CRAY HT WEX gal	Ammonia gal	Uritex #	CAMEL WITE #	LATEX 6107 gal	PG-208 #	74-B PENCOR
2-27.79	8 77	20	42	115	84	25 17	30	34	-	-	-	-
28	6 60	16	32	100	68	18 92	24	-	-	-	-	-
3-1.79	8 25	20	40	125	85	23 65	30	-	-	-	-	-
2	7 64	16	36	80	86	21 90	24	68	-	-	-	-
3	11 98	24	56	110	98	34 46	36	136	-	-	-	-
5	6 60	16	32	100	68	18 92	24	-	-	-	-	-
6	8 25	20	40	125	85	23 65	30	-	-	-	-	-
7	8 16	16	38	70	65	23 48	24	102	-	-	-	-
8	4 34	20	35	30	32	16 76	27	68	11 50	420	-	-
9	10 85	32	60	60	64	30 68	44	136	22 00	5 60	-	-
10	10 85	32	65	75	80	35 51	45	170	16 50	4 20	4 00	-
12	10 85	28	60	75	80	34 09	40	170	11 00	2 80	4 00	-
13	8 68	16	40	60	64	25 00	24	136	-	-	10 00	
14	-	16	-	-	23	21 89	38	-	2 50	-	-	-
15	10 85	20	50	80	80	31 25	30	170	-	-	-	-
16	13 02	24	60	90	96	37 50	36	204	-	-	-	-
17	10 85	20	50	75	80	31 25	30	170	-	-	-	-
19	10 85	20	50	75	80	31 25	30	170	-	-	-	-
20	8 68	16	40	60	64	25 00	24	102	-	-	5 00	-
21	-	-	-	-	15	22 89	44	-	6 50	-	-	-
22	-	16	20	-	15	19 37	43	-	22 00	5 30	8 00	-
23	6 51	32	30	45	73	18 75	28	102	47 50	-	15 00	-
24	8 68	22	40	60	94	25 00	36	68	-	-	18 00	
26	4 34	20	8	30	66	12 50	12	-	154 00	-	4 00	-
27	10 85	20	50	75	80	31 25	30	68	-	-	-	
28	10 85	20	50	75	80	31 25	30	170	-	-	-	
29	8 77	20	42	116	84	25 05	30	34	-	-	-	
31	4 95 ✓	12 ✓	24 ✓	75 ✓	51 ✓	14 10 ✓	18 ✓	-	-	-	-	-
30	6 60	16	32	100	68	18 80	24					
	[illegible]	[illegible]	[illegible]	17 81	19 40	10 49	[illegible]	[illegible]	[illegible]	[illegible]		
	[illegible] ✓	✓	85 18 ✓	✓	✓	[illegible] ✓	[illegible] ✓	✓	✓	[illegible] ✓		

SA 068104

[redacted]

PG-208 #	74-B PENCORE	STAYSIZE 112 #	CLINSIZE 173B	NOPCOCIDE 120	NOPCOCIDE K gal	CALGON T #	GLYCERINE	CELLOSIZE	CELLO LOSE CMC-7L #	SCRIP TEST 720 GAL	7C-807	239 GAL ATLAS
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	18 00	-	-	-	-	-	-	-	-	-	-
-	-	6 00	-	-	-	-	-	-	-	-	-	
-	-	8 00	-	-	-	-	-	-	-	-	-	
4 00	-	2 00	-	-	-	-	-	-	-	-	-	
4 00	-	-	-	-	-	-	-	-	-	-	-	-
10 00	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5 00	-	20 00	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
8 00	-	-	-	-	4	14	-	-	50	-	-	
15 00	-	-	-	-	-	-	-	-	-	85	25	-
18 00	-	-	-	-	-	-	-	-	-	102	30	
4 00	-	-	-	-	19	-	34	50	-	-	-	102
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	
[illegible]	-	54 00	-	-	23	14	34	50	50	187	[illegible]	[illegible]
		✓			✓	✓	✓	✓	✓	424	[illegible]	[illegible]
										✓		

620 LATEX gal	722 LATEX gal	D-122 same DZ-122 NS #	BORAX #	LV PROTEIN #	SODIUM NITRATE	x 10 PREZ 707 gal	H.T CDAY DRY	Missipp. CLARK
					4500			
1005			70					
					9300			
1085		32	75	1524		36		
645		24	45	900		21		
								1750
11 15		[illegible]	1 10	[illegible]	[illegible]	[illegible]		1720

SA 068106

April 1979 3960# start using in May

Mill "C" CHEMICALS

DATE	GAL. ALUM	3000# TANK CLAY	GAL x 9.2 SIZE	6768 LBS. CLINTON	GAL. PARACOL	WAX BAGS x 100 STAZYME-J	112 LBS x 100 STAYSIZE	LBS. TITANIUM	LBS. ANSILEX	KOCH DETOAMER GAL	GAL CP-7	LBS NALCO-
4-2-79	550	270.00	–	–	–	154.00	–	68.00	30.00	15	25	/
3	700	270.00	21.16	–	–	108.00	–	91.00	37.50	15	50	/
4	500	300.00	21.16	–	–	108.00	–	82.50	37.25	15	100	/
5	650	150.00	21.16	–	–	61.00	–	55.75	28.00	15	75	/
6	750	90.00	21.16	–	–	26.00	–	54.00	18.00	15	75	/
7	500	120.00	21.16	–	–	–	–	38.50	17.50	10	75	/
9	550	270.00	21.16	–	–	130.00	–	78.00	27.50	15	25	/
10	700	210.00	21.16	–	–	60.00	–	82.00	31.75	15	75	/
11	650	240.00	21.16	–	–	108.00	–	92.00	40.50	15	125	/
12	600	210.00	21.16	–	–	84.00	–	110.50	57.50	15	200	/
13	750	210.00	21.16	–	–	48.00	–	100.00	57.00	15	225	/
14	650	240.00	21.16	–	–	60.00	–	45.00	18.75	10	125	/
16	750	210.00	23.92	–	–	95.00	10.00	55.50	22.50	15	100	/
17	500	90.00	42.32	–	–	48.00	–	63.00	22.50	15	100	/
18	700	90.00	42.32	–	–	25.00	–	63.00	22.50	15	50	/
19	550	210.00	21.16	–	–	48.00	10.00	78.00	34.00	15	50	/
20	950	180.00	42.32	–	–	85.00	–	80.50	40.50	15	50	/
21	450	150.00	21.16	–	–	12.00	–	64.75	31.25	10	100	
23	550	240.00	42.32	–	–	105.00	12.00	52.00	20.00	1.65	50	/
24	500	150.00	42.32	–	–	38.00	–	49.00	17.50	15	150	
25	900	270.00	21.16	–	–	120.00	–	78.00	31.00	–	100	
26	758	450.00	–	–	–	144.00	–	48.00	24.00	15	50	
27	750	420.00	21.16	–	–	132.00	–	77.50	26.25	15	100	
28	450	330.00	21.16	–	–	12.00	–	63.75	21.25	10	100	
	[illegible]	[illegible]	74.08	✓	–	1311.00 ✓	32.00 ✓	[illegible]	714.[illegible]	4.75	–	

3000 | 3960
1327

GAL CP-7	LBS. NALCO-680	LBS PARAMEL	TANK ALUM-ON-TANK	GAL. CLAY TANK	LBS. Zolex	753 CLINSIZE	BAGS SODIUM NITRATE	100x LBS DOUGLAS STARCH	Logs Salt	Bags 120 Stacote
25	128	-	2	2100	-	-	-	-	-	
50	138	-	3	4000	-	-	-	-	-	
100	132	-	2	3400	-	-	-	-	-	-
75	154	20006	3	1500	-	-	-	-	-	
75	184	39480	3	1000	-	-	-	-	-	-
75	126	26800	2	1200	-	-	-	-	-	-
25	136	20280	not working	3600	-	-	-	-	-	-
75	118	9420	3	2200	-	-	-	-	-	-
125	144	-	2	2600	-	-	-	-	-	-
200	136	-	3	2000	-	-	-	-	-	-
225	137	-	3	2300	-	-	-	-	-	-
125	132	-	3	2500	-	-	-	-	-	-
100	172	32500	3	1300	-	-	-	-	-	-
100	176	33580	2	1000	-	-	-	-	-	-
50	168	33460	3	900	-	-	-	-	-	-
50	100	2800	2	2400	-	-	-	-	-	-
50	108	-	4	2400	-	-	-	-	-	-
100	86	-	2	1500	-	-	-	-	30	-
50	136	29000	2	2440	-	-	-	-	-	-
150	130	14040	2	1545	-	-	-	-	60	-
100	124	-	4	2765	-	-	-	-	-	-
50	156	-	7	5580	-	-	-	-	-	-
100	140	-	3	4310	-	-	-	-	-	-
100	114	-	2	2760	-	-	-	-	-	49
175	3275	131360	15	[illegible]	-	-	-	-	[illegible]	4[illegible]
		20109				✓		✓		
		✓								
		1350340								

SA 068108

Stand

Mill "D" Chemicals

Oxbow Dikers 277

April 1979

DATE	120 x TANK SIZE GAL	C-7 GAL	LBS. ↓ 100# Bag	100# BAG CLINCOSS	50# Bags Titanium	N-M GAL. NALCO	CLAY COUNTER	SODIUM ALUMINATE	B-64 GLUE
4-2-79	360	3	-	16000	11000	24	-	-	-
3	480	3	-	12800	10000	12	-	-	-
4	480	3	-	14400	10500	1	-	-	-
5	420	3	-	16000	10750	34	-	-	-
6	none								
7	720	3	-	8000	8250	1	-	-	-
9	600	-	-	9400	2900	72	-	1	-
10	480	-	3200	11600	3200	1	4	1	-
11	510	-	-	12800	2300	36	5	-	-
12	360	-	-	11200	1100	1	7	1	-
13	480	-	-	14400	1030	2	6	1	
14	1080	-	-	8000	1160	1	-	3	-
16	720	-	-	20800	2080	1	-	-	-
17	700	-	-	12800	2010	1	-	-	-
18	480	-	-	12800	2000	1	-	-	-
19	640	-	-	9600	1900	1	-	-	-
20	490	-	-	9600	1900	1	-	-	-
21	540	-	-	9600	800	-	13	1	-
23	360	-	-	20800	4000	54	7	1	-
24	360	-	-	12800	2660	-	6	1	-
25	600	-	-	20800	3000	2	5	1	-
26	780	-	-	16000	2900	36	5	1	-
27	none								
28	460	-	-	6400	2000	40	-	-	-
	[illegible]	15	3200	216600	51540	[illegible]	39	12	-

✓

✓

389147

SR 068109

CLAY ROTO-DIP USAGE

DATE	#5	#6	Total
4-2-77	673	3454	[illegible]
3	2139	3273	[illegible]
4	2568	3873	[illegible]
5	1774	2191	3965
6	1492	2216	3708
7	1111	2533	3644
9	2240	2974	5214
10	2504	2179	4683
11	1632	2521	4153
12	1582	1948	3530
13	1116	2226	3342
14	768	4068	4836
16	2076	1954	4030
17	1962	1601	3563
18	1874	2150	4034
19	1608	2582	[illegible]
20	1576	2977	4553
21	1170	1979	3149
23	1824	4256	6080
24	1752	2422	4174
25	2382	2966	5348
26	3762	4855	8617
27	5050	5079	10129
28	5088	4489	9577
	49743	70771	120514

SA 068110

April 1979

Mill "E" Chemicals

x .48

DATE	SOY FLOUR	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX tk. DOW 636	LATEX Dm. DOW 636	TSPP	ULTRA BLUE	PAREZ RESIN	RED BKP
4-2-3	–	–	1650	40000	195	–	9000	–	105	–	–	–
4-5	–	–	1760	40000	192	–	9600	–	112	–	–	–
6	–	–	880	22500	104	100	4800	–	136	–	–	–
9-10	–	–	880	25000	96	–	4800	–	60	–	–	–
11-12	–	–	1650	40000	195	–	10200	–	165	–	–	–
16-17	–	–	760	15000	78	–	4800	–	56	–	–	–
18-19	–	–	1650	37500	195	–	9000	–	105	–	–	–
20-21	–	–	1760	40000	208	–	9800	–	112	–	–	–
23-24	–	–	1760	37500	208	–	9600	–	105	20	–	–
25-26	–	–	1650	37500	195	–	9000	–	105	–	–	–
27	–	–	770	20000	109	–	4800	–	49	–	–	–
	–	–	15170	35[illegible]00	1775	100	85400	–	1110	20	–	–
			✓	✓	✓	✓	x .48		✓	✓		
							40992					
							✓					

SA 068111

AREZ RESIN	RED BKP #	GAL. AMMONIA	SALT	BORAX	GAL NOPCO 178	# FORMALY-DEHYDE	# PROCOTE PROTEIN	LATEX DA. DOW 620	STANLEY Stacote 120	DYLEX LATEX	Dm SORNIN LATEX
–	–	315	7500	225	50	375	4500	–	–	–	–
–	–	336	–	240	46	400	4800	–	–	–	–
–	–	168	4000	120	46	200	2400	–	–	–	–
–	–	168	4000	120	55	250	2400	–	–	–	–
–	–	210	7500	225	160	400	4500	–	–	–	–
–	–	126	3000	90	110	200	1800	–	–	–	–
–	–	315	7500	225	60	375	4500	–	–	–	–
–	–	336	7000	240	58	400	4800	–	–	–	–
–	1	315	7500	225	60	375	4500	–	–	–	–
–	–	315	3000	225	44	375	4500	–	–	–	–
–	–	147	–	105	91	280	2100	–	–	575	–
–	1	2751	51000	3040	7[illegible]	3630	[illegible]	–	–	–	–
	✓	x 727	✓	✓	1 73	✓	✓			✓	
		20000			266						
		✓			✓						

538079 ✓

SA 068112

Mach. 5+6
Mill C

April 1979 481 462 487 Pulp 507 Used 467 In 477 Hydropulpee 520 489 327 481 497

DATE	Dryden Semi Bl.	NAHOLA	MARATHON	Superior	Pr. George	Celgar	Crest-Brook	Brunswick	West-Vaco	Kamloops	TOTAL	Dryden T.B
4-2-79	10	–	–	–	–	–	–	–	–	–	273	
3	–	–	–	–	–	–	–	–	–	–	307	
4	–	152	–	–	–	–	–	–	–	–	386	–
5	–	52	18	–	–	–	–	–	–	–	347	
6	–	10	270	–	–	131	–	–	–	–	437	–
7	–	43	160	–	–	93	–	–	–	55	366	
	(4810) 10	(118734) 257	(218176) 448	–	–	224	–	–	–	(26435) 55	2018	(14) 1
9	–	30	–	–	–	35	–	–	–	160	305	–
10	–	–	–	–	–	–	–	–	–	140	171	–
11	–	–	–	–	–	–	–	–	–	125	344	–
12	–	–	193	–	–	–	–	–	–	10	334	–
13	150	–	40	–	–	–	–	–	–	–	365	–
14	75	–	78	–	–	–	–	–	–	–	377	–
	(188225) 225	(13860) 30	(151457) 311	–	–	(16695) 35	–	–	–	(209235) 435	1910	–
16	–	–	275	–	–	–	–	–	–	–	439	–
17	–	–	245	–	–	–	10	–	–	–	423	–
18	–	–	–	–	–	–	255	–	–	–	702	–
19	–	–	–	–	–	–	130	–	–	–	267	–
20	–	–	–	–	–	–	140	–	–	–	342	–
21	–	–	–	–	–	–	85	–	–	–	181	
	–	–	(253240) 320	–	–	–	(322400) 620	–	–	–	1944	–
23	–	–	–	–	–	–	155	–	–	–	285	–
24	–	–	–	–	–	–	–	–	–	–	345	
25	–	–	–	–	–	–	–	–	–	–	312	
26	–	120	6	–	–	–	–	–	–	–	332	–
27	95	135	74	–	–	–	–	–	–	–	339	–
28	70	86	63	–	–	–	–	–	–	–	337	–
	(179365) 165	(157542) 341	(169641) 143	–	–	–	(80600) 155	–	–	–	1741	–
	(192400) 400	(290136) 628	(692514) 422	–	–	(123543) 259	(403000) 775	–	–	(235690) 490	7613	(116374) 1
	✓	✓	✓	✓		✓	✓			✓		
											364/3761	

068113

[redacted]

TOTAL	397 Dryden F.B.	587 Gd Prairie	397 Eddy	560 Buckeye	518 Alphanier	500 ALLIED SW	515 Domtar	477 Allied HW	498 Ft ALBERT	418 Potlatch	510 Pontiac
273	98	–	–	–	–	165	–	–	–	–	–
307	24	–	–	–	–	175	–	10	78	–	–
286	–	–	–	–	–	10	–	40	84	–	
349	20	–	144	–	–	–	–	13	102	–	–
437	–	–	–	–	–	26	–	–	–	–	
366	–	–	–	–		15	–	–		–	–
405	(56374) 142	–	(57168) 144	–	–	411	–	(31311) 63	264	–	–
305	–	–	–	–	–	80	–	–	–	–	–
291	–	–	–	–	–	149	–	?	–	–	
344	–	–	–	–	–	178	–	21	–	–	–
326	–	–	119	–	–	–	–	4	–	–	–
365	–	–	175	–	–	–	–	–	–	–	–
279	–	–	126	–	–	–	–	–	–	–	–
1910	–	–	(146740) 420	–	–	(213500) 427	–	(13419) 27	–	–	–
439	–	–	154	–	–	–	–	–	–	–	–
423	–	–	168	–	–	–	–	–	–	–	–
402	–	–	147	–	–	–	–	–	–	–	–
267	–	–	95	–	–	–	–	–	102	–	–
242	–	–	–	–	–	–	–	–	102	–	–
181	–	–	–	–	–	–	–	–	96	–	–
1944	–	–	(200088) 504	–	–	–	–	–	(149400) 300	–	–
285	–	28	–	–	–	–	–	–	102	–	–
245	–	132	–	–	–	5	–	–	108	–	–
313	–	–	–	–	–	201	–	–	112	–	–
332	–	–	–	–	–	96	–	–	110	–	–
329	–	–	–	–	–	–	–	–	25	–	–
237	–	–	–	–	–	18	–	–	–	–	–
1741	–	(93920) 160	–	–	–	(160000) 320	–	–	(227586) 457	–	–
1613	(56374) 142	(93920) 160	(423996) 1068	–	–	(579000) 158	–	(44730) 90	(508458) 1021	–	–
1376	✓	✓	✓			✓		✓	✓		

SA 068114

Mach. 7, 8 + 9
Mill D

April 1979 Pulp Used In Hydropulper

DATE	Superior 507	Kamloops 481	Simpson 397	Nahola 462	Marathon 487	Crestbrook 520	Gd. Prairie 587	Allied SW 500	West VACO 327	Ft. George 467	Total	Allie Hu 47
4-2 79	-	-	-	-	-	-	-	110	-	-	372	
3	-	36	-	-	-	-	-	164	-	-	354	
4	-	60	-	86	-	-	-	70	-	-	322	
5	-	92	-	162	-	-	-	6	-	-	336	
6	-	102	-	56	-	-	-	48	-	-	288	
7	-	42	-	48	-	-	-	28	-	-	210	
	-	(159692) 332	-	(162624) 352	-	-	-	(213000) 426	-	-	1892	(113286) 2
9	-	-	-	64	-	-	-	36	-	-	[illegible]	-
10	116	-	-	72	-	-	-	60	-	-	324	
11	112	-	-	8	-	-	-	108	-	-	276	
12	118	-	-	52	-	-	-	78	-	-	276	-
13	112	-	-	80	-	-	-	-	-	-	240	
14	16	-	-	-	-	-	-	-	-	-	192	
	(240318) 474	-	-	(127512) 276	-	-	-	(141000) 282	-	-	1620	(26838)
16	-	-	-	-	-	-	-	-	-	-	288	-
17	-	-	-	-	-	-	-	-	-	-	522	
18	-	-	-	-	-	-	-	-	-	-	292	
19	-	-	-	-	-	-	-	-	-	-	336	
20	-	-	-	-	-	-	-	172	-	34	288	
21	-	-	-	-	-	-	-	174	-	60	324	
	-	-	-	-	-	-	-	(173000) 346	-	(43898) 94	2050	(141821) 3
23	-	-	-	-	-	-	-	218	-	60	372	
24	-	76	-	-	-	-	-	138	-	94	344	
25	-	160	-	-	-	-	-	96	-	-	288	
26	-	68	-	-	-	-	-	82	-	-	288	
27	-	-	-	-	-	-	-	122	-	220	376	
28	-	-	-	-	-	-	-	84	-	196	300	
	-	(146224) 304	-	-	-	-	-	(370000) 740	-	(266190) 570	1968	([illegible])
	(240318) 474	(305916) 636	-	(290136) 628	-	-	-	(897000) 1794	-	(310088) 664	7530	(132390)
	✓	✓		✓	✓		✓	✓		✓		
											3658126	

SA 068115

Total	497 Allied HW	477 Celgar	397 Dryden F.B.	489 Brunswick	397 Eddy	481 Dryden Semi Bl.	475 Port Hudson	434 Fort Frances	512 Noral	462 Missoula	198 Pr Albert	307 DomtAR
372	54	112	–	–	–	–	–	–	–	–	16	–
354	40	62	–	–	–	–	–	–	–	–	52	–
332	84	32	–	–	–	–	–	–	–	–		–
336	40	36	–	–	–	–	–	–	–	–	–	–
288	20	62	–	–	–	–	–	–	–	–	–	–
210	–	58	–	–	–	–	–	–	–	–	40	–
1892	(118286) 238	(172674) 362	–	–	–	–	–	–	–	–	(100[illegible]) [illegible]	–
312	–	86	–	–	–	–	–	–	–	–	130	–
324	24	26	–	–	12	–	–	–	–	–	14	
276	16	–	–	–	32	–	–	–	–	–	–	–
276	–	4	–	–	24	–	–	–	–	–	–	–
240	2	12	–	–	34	–	–	–	–	–	–	–
192	12	60	–	–	104	–	–	–	–	–		–
1620	(26838) 54	(59676) 188	–	–	(81782) 206	–	–	–	–	–	(69720) 140	–
288	–	96	–	–	72	–	–	–	–	–	120	–
522	38	104	–	–	–	–	–	–	–	–	380	–
292	90	46	–	–	–	–	–	–	–	–	[illegible]	–
336	130	–	–	–	–	–	–	–	–	–	[illegible]	–
288	50	–	–	–	–	–	–	–	–	–	52	–
324	84	–	–	–	–	–	–	–	–	–	6	–
2050	(194824) 392	(117342) 246	–	–	(28584) 72	–	–	–	–	–	(448200) 900	–
372	86	–	–	–	–	–	–	–	–	–	8	–
344	36	–	–	–	–	–	–	–	–	–	–	–
288	32	–	–	–	–	–	–	–	–	–	–	–
288	12	–	–	–	–	–	–	–	–	–	[illegible]	–
376	–	–	–	–	–	–	–	–	–	–	37	–
300	20	–	–	–	–	–	–	–	–	–		–
1968	(92442) 186	–	–	–	–	–	–	–	–	–	(83664) 168	–
7530	(432390) 870	(379692) 796	–	–	(110306) 278	–	–	–	–	–	(692220) 1390	
2658126	✓	✓	✓		✓	✓					✓	

7-30/88

SA 068116

MACH. 5+6
Mill C

April 1979

Chemicals ① Used In ② Beater ③

DATE	Alum #	Size #	CLAY CAL	Ansilex	SCM	NALCO 680	Titanium	ZEALEX	Ti-Pure	Du-Pont	Total	④ AX
4-2 79	1120	720	5600	3000	–	128	–	–	–	–	13568	68
3	1208	754	5750	3750	–	138	–	–	–	–	20500	89
4	1155	698	5400	3725	4200	132	–	–	–	–	1[illegible]360	40
5	1348	1233	2100	2788	5575	154	–	–	–	–	12198	–
6	1610	1725	–	2400	5400	187	–	–	–	–	113.22	–
7	1278	1369	–	1750	3850	146	–	–	–	–	8393	–
	7719	6499	18850	17413	19025	885	–	–	–	–	90141	197
9	1190	1150	2000	3250	–	136	7800	–	–	–	10536	–
10	1033	1931	3100	3163	3500	118	–	–	–	–	17345	44
11	1260	878	5400	4050	–	144	–	–	–	–	30932	[illegible]
12	1190	843	5000	5750	–	136	11250	–	–	–	24169	–
13	1225	868	5200	5700	4600	140	5400	–	–	–	33133	–
14	1156	784	5100	1875	–	132	4500	–	–	–	13547	–
	7054	6454	25800	23788	8100	806	28950	–	–	–	114552	136
16	1505	1955	–	2250	–	172	5550	–	–	–	11432	–
17	1540	2155	–	2250	–	176	6300	–	–	–	12421	–
18	1470	2055	–	2250	–	168	6300	–	–	–	12243	–
19	875	1420	1700	3400	650	100	3850	–	2700	–	14695	–
20	945	2275	2050	3900	–	108	8050	–	–	–	17328	–
21	753	1250	2250	3125	–	86	6475	–	–	–	13939	–
	7088	11110	6000	17175	650	810	36525	–	2700	–	82058	–
23	1155	2055	–	2000	–	136	5200	–	–	–	10546	–
24	1138	2350	–	1750	–	130	4900	–	–	–	10268	–
25	1295	1010	4400	3100	2200	156	5600	–	–	–	17761	–
26	1330	751	8500	2400	1350	156	4050	–	–	–	18537	–
27	1190	688	7000	2625	–	140	7750	–	–	–	17393	–
28	263	555	6600	2138	–	114	6225	–	–	–	15895	–
	6371	7409	26500	14013	3550	832	33725	–	–	–	92400	–
	28232	31472	77150	72389	31325	3333	99200		2700		379151	233

(4)

Total	AX
17368	6800
20500	8900
17360	4050
13198	–
11332	–
8393	–
90141	19750
15526	–
17345	4400
20932	9200
24169	–
23133	–
13547	–
114552	13600
11432	–
12421	–
12243	–
14695	–
17328	–
3939	–
82058	–
10546	–
10268	–
17761	–
18537	–
19393	–
15895	–
92400	–
379151	33350

SA 868118

Mach 7, 8 + 9
Mill D
April 1979

Chemicals Used In Beater

DATE	Alum #	Size #	CLAY GAL	Ansilex	SCM	NALCO 680	AX	Ti-Pure	CAMEL WITE	CALICUM CARBONATE	TOTAL	Titanium
4279	21.90	20.45	94.90	29.00	55.50	2.82	-	-	-	-	224.57	-
3	21.85	25.55	70.70	66.50	100.00	2.97	-	-	-	-	287.57	-
4	22.60	32.50	75.00	58.00	72.00	2.85	-	-	-	-	253.15	-
5	23.40	25.60	64.20	60.00	94.50	2.97	-	-	-	-	270.67	-
6	19.23	32.73	65.30	69.25	117.50	2.63	-	-	-	-	296.64	-
7	15.59	32.83	54.45	42.63	79.00	2.18	-	-	-	-	216.68	-
	124.57	139.66	424.55	325.38	518.50	16.42	-	-	-	-	1549.08	-
9	25.75	31.05	61.40	46.50	106.00	2.82	-	-	-	-	273.52	-
10	24.40	28.21	64.50	85.50	155.00	2.76	-	-	-	-	360.37	-
11	21.45	23.90	80.40	55.00	110.50	2.67	-	-	-	-	293.92	-
12	21.00	21.00	98.20	27.50	55.50	2.52	-	-	-	-	225.72	-
13	21.90	21.23	93.30	37.00	53.50	2.49	-	1.00	-	-	231.62	-
14	18.35	17.65	56.80	24.50	36.00	2.07	-	6.00	-	-	176.65	130
	132.85	143.04	454.60	276.00	516.50	15.33	-	7.00	-	-	1561.80	130
16	21.40	19.40	63.00	70.50	116.00	2.46	-	-	-	-	293.48	-
17	27.05	27.91	42.50	56.00	89.00	2.91	-	-	-	-	245.37	-
18	24.75	17.95	79.90	27.50	37.50	2.97	-	-	-	-	192.57	20
19	26.50	20.30	74.50	13.50	15.50	3.18	-	-	-	-	161.23	67
20	23.83	18.13	59.75	10.25	17.75	2.90	-	-	-	-	133.19	-
21	20.90	15.55	72.40	30.00	54.00	2.70	-	-	-	-	195.55	-
	144.43	119.24	392.05	207.75	329.75	17.12	-	-	-	-	1221.39	87
23	25.75	22.15	167.20	75.75	145.50	3.09	-	-	-	-	439.44	-
24	22.35	19.35	74.20	54.50	123.00	2.79	-	-	-	-	296.19	-
25	21.90	18.38	66.40	67.00	142.00	2.76	-	-	-	-	319.87	-
26	21.15	20.85	44.30	77.50	119.50	2.70	-	21.00	-	-	307.81	
27	21.45	20.41	51.50	48.00	106.50	2.67	-	-	-	-	251.28	
28	17.82	16.48	34.63	31.63	78.14	2.13	-	-	-	-	182.13	-
	130.42	117.62	438.23	354.38	714.64	16.14	-	21.00	-	-	1796.72	-
	532.27	519.56	1709.43	1163.51	2079.39	65.01	-	28.00	-	-	6128.99	217

SA 068119

(3)

Total	Titanium	Zealex	Alpha-size
22457	–	–	–
28757	–	–	–
25295	–	–	–
27067	–	–	–
29664	–	–	–
21668	–	–	–
54908	–	–	–
27352	–	–	–
36037	–	–	–
29392	–	–	–
32572	–	–	–
23162	–	–	120
17665	1300	–	228
156180	1300	–	348
29348	–	–	72
21537	–	–	–
19257	200	–	–
16123	675	–	100
13319	–	–	58
19555	–	–	–
122139	875	–	230
43944	–	–	–
29619	–	–	–
31987	–	–	143
30781	–	–	81
25128	–	–	75
18213	–	–	130
79672	–	–	429
128899	2175	–	1007

SA

068120

No R+D. Trials

April 1979 — Blade Coater Chemicals

DATE	LATEX 673 gal	Defoamer D7-122	Stearate DC-111 gal	Kelgin HV #	TSPP #	CLAY HT gal	WEX gal	Ammonia	Uvitex #	Cam.l White #	LATEX 6107 gal.	PG-208 #	74-B Pencore
4-2 79	712	16	24	90	67	2035		24	34	-	-	-	-
3	495	12	24	75	51	1410		18	-	-	138		-
4	1085	20	50	75	80	3125		30	136	-	-	-	-
5	868	16	40	60	48	2500		24	68	-	-	-	-
6+7	1481	1190	1036	1809	588	21680		515	11436	-	-	-	-
	—	—	—	—	—	—		—	—	—	—	—	—
9	651	12	30	45	48	1875		18	-	-	-	-	-
10	651	12	30	45	48	1875		18	-	-	-		-
11	-	12	30	45	66	1875		18	102	-	-	-	-
12	1110	16	40	57	64	1262		24	32	-	-	-	
13	2000	20	50	50	80	950		30	-	-	-	-	-
14	1532	24	32	100	68	1876		24	-	-	-	-	-
16	383	6	8	25	17	469		6	-	-	-		-
17+18	330	8	16	50	34	946		12	-	-	-	-	-
19	805	12	24	75	51	1619		18	-	-	-	-	-
20+21	1085	20	50	75	80	3125		30	170	-	-	-	
23	1240	16	40	60	64	2500		24	34	-	-	-	-
24	1550	20	50	75	80	3125		30	102	-	-	-	
25	1550	20	50	75	80	3125		30	170	-	-	-	-
26	1240	16	40	60	64	2500		24	136	-	-	-	
27	1240	16	40	60	64	2500		24	136	-	-	-	-
	20008	1[illegible]	1704	3000	742	60372		941	12550	-	138	-	-
	x 3.98	✓	.809	✓	✓	x10C		x7.27	✓		x 4.37		
	79632		13785			603720		6841			603		
	✓		✓			✓		✓			✓		

SA 368121

PG-208 #	74-B Pencore	Staysize 112 #	Clinsize 173 B	NOPCOCIDE 120	NOPCOCIDE K gal.	CALGON T #	Glycer-ine	CELLO-SIZE	CELLO # LOSE CMC-7L	Scriptest 720 gal.	FC-807	239 gal. Atlas
		600										
		600										
		1200										

SA 068122

y 4.23

x 10

620 LATEX gal	722 LATEX gal	D7-122 DZ-122NS #	BORAX #	LV PROTEIN #	SODIUM NITRATE	PREZ 707 gal	H. T CLAY DRY	MISSIPPI CLARK	Hyb clay
-	-	-	-	-	-	-	-	-	-
-	-	-	-	27.50	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
6.51	-	-	-	-	-	-	-	-	-
2.17	-	-	-	-	-	-	100.00	-	23.50
-	-	-	-	-	-	-	150.00	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
8.68	-	-	-	27.50	-	-	250.00	-	23.50
4.23				✓			✓		✓
37.58									
✓									

758427 ✓

SA 068123

Ed Arnold Ext 250

MAY 1979 .25 Mill "C" CHEMICALS

DATE	ALUM. GAL	CLAY 3960# TANK	SIZE GAL x ~~[illegible]~~	CLINTON 6758 LBS	PARACOL GAL WAX	STAZYME-J BAGS x 100	STAYSIZE 112 LBS x 100	TITANIUM LBS.	ANSILEX LBS.	DEFOAMER KOCH GAL x 8.09	CP-7 GAL. x 1.42	NALCO-6 LBS.
4-30 79	10.00	435.60	–	–	–	158.00	–	70.00	29.50	15	1.00	12
5-1 79	7.00	396.00	21.16	–	–	72.00	–	52.50	22.50	15	.50	1
2	10.00	356.40	21.16	–	–	52.00	–	20.50	9.75	15	.50	1
3	6.50	39.60	25.14	–	–	48.00	–	62.00	24.00	15	.50	16
4	7.00	198.00	22.60	–	–	45.00	–	56.00	21.00	15	1.00	13
5	7.00	198.00	16.17	–	–	3.00	–	52.00	19.50	10	.75	1
7	8.00	435.60	10.87	–	–	165.00	–	68.00	25.50	15	.75	1
8	6.00	554.40	11.96	–	–	120.00	–	13.25	8.50	15	1.25	1
9	7.00	514.80	5.65	–	–	132.00	–	13.00	11.00	15	.75	1
10	7.50	356.40	–	–	–	73.00	–	33.50	20.00	15	1.00	1
11	5.00	356.40	–	–	–	55.00	–	11.00	11.00	15	.75	1
12	7.00	237.60	–	–	–	48.00	–	9.00	9.00	15	1.50	1
13	10.00	435.60	–	–	–	60.00	–	9.00	9.00	15	.25	1
14	8.00	594.00	–	–	–	108.00	–	34.50	21.50	15	.25	1
15	7.00	475.20	–	–	–	84.00	–	34.00	19.00	15	1.00	1
16	7.50	396.00	–	–	–	96.00	–	31.25	18.00	10	1.00	1
17	11.75	435.60	–	–	–	108.00	–	72.00	30.00	10	.50	1
18	9.50	316.80	5.78	–	–	108.00	–	88.00	36.00	10	1.25	1
19	7.00	316.80	8.01	–	–	84.00	–	67.50	32.00	10	1.00	1
20	8.00	237.60	18.09	–	–	60.00	–	72.25	30.25	10	1.00	1
21	9.00	118.80	23.24	–	–	13.00	–	45.50	20.50	10	1.50	1
22	7.00	79.20	20.30	–	–	25.00	–	40.00	20.00	10	1.00	1
23	7.00	277.20	32.40	–	–	39.00	–	37.00	20.00	10	1.50	1
24	10.00	475.20	11.59	–	–	40.00	–	36.00	20.00	10	2.00	1
25	8.50	237.60	9.39	–	–	–	–	81.00	31.00	10	2.00	[illegible]
26	9.50	356.40	9.05	–	–	–	–	106.25	48.50	10	1.50	[illegible]
27	7.00	356.40	11.45	–	–	112.00	–	76.00	35.00	10	.50	
	[illegible]	[illegible]	[illegible]	–	–	190.00		12[illegible]	60.00	34[illegible]	[illegible]	

SA 068124

GAL. CP-7	LBS. NALCO-680	LBS. PARAMEL	TANK ALUM-ON-TANK	GAL. CLAY TANK	LBS. ZOLEX	753 CLINSIZE	BAGS SODIUM NITRATE	100 x LBS. DOUGLAS STARCH	BAGS SALT	bags Stacote 120	[illegible]	[illegible]
100	128	–	4	5000	–	–	–	–	–	16		–
50	148	14980	3	3800	–	–	–	–	–	–	–	–
50	188	39480	4	1900	–	–	–	–	–	–	–	–
50	164	31980	3	800	–	–	–	–	–	–	–	–
100	136	29580	3	1600	–	–	–	–	90	–	–	–
75	120	31240	3	1400	–	–	–	–	18	–	–	–
75	156	–	notworking	4100	–	–	–	–	–	–	–	–
125	162	–	2	4300	–	–	–	–	–	–	–	–
75	170	–	3	4100	–	–	–	–	–	–	44	372
100	144	17500	3	1300	–	–	–	–	–	–	–	–
75	152	35200	2	2700	–	–	30	–	–	–	–	549
150	152	30900	3	2000	–	–	–	–	–	–	–	456
25	160	31880	4	5400	–	–	–	–	–	–	–	536
25	142	–	3	5300	–	–	–	–	–	–	–	342
100	120	–	3	4000	–	–	–	–	–	–	–	289
100	106	–	3	3500	–	–	–	–	–	–	–	438
50	120	–	5	3500	–	–	–	–	–	–	–	276
125	128	–	4	2700	–	–	–	–	–	–	–	72
100	116	–	3	2800	–	–	–	–	–	–	–	–
100	146	31060	3	–	–	–	–	–	–	–	–	–
150	166	34920	4	860	–	–	–	–	–	–	–	–
100	172	34980	3	1000	–	–	–	–	–	–	–	–
150	144	28980	3	2400	–	–	–	–	–	–	–	–
[illegible]	3240	[illegible]	71	[illegible]	–	–	30	–	[illegible]	16	44	–
200	148	4460	4	4000	–	–	–	12100	–	–	–	–
200	124	–	4	2100	–	–	–	6200	–	–	–	–
150	138	–	4	3100	–	–	–	11200	–	–	–	–
50	148	–	3	3100	–	–	–	–	–	–	–	–
2650	3898	387140	86	76760	–	–	30	29500	108	16	44	3-20
17312		30971								100		
										1600		

SA 068125

MAY 1979 Mill "D" Chemicals

DATE	120 x TANK SIZE GAL	C-7 (drums) GAL	LBS J 100# BAGS	100# BAG CLINCO 55	50# BAGS Titanium	7-M GAL NALCO	CLAY COUNTER	SODIUM ALUMINATE	B-64 (pounds) GLUE
4-30 79	340	–	–	14400	2500	1	–	–	–
5-1	500	–	9600	–	3250	48	–	–	–
2	600	–	–	11200	2100	1	–	–	–
3	480	–	–	11200	2250	36	–	–	–
4	300	–	–	12800	2250	2	–	–	–
5	840	–	–	14400	–	3	–	–	–
7	600	–	–	24000	2100	1	–	–	–
8	280	–	–	17600	2100	1	–	–	–
9	320	–	–	11200	2200	1	–	–	2
10	360	–	–	11200	2000	12	–	–	1½
11	–	–	–	8000	1310	–	–	7	–
12	480	–	–	9600	2480	–	–	2	1
13	480	–	–	6400	3680	–	–	2	–
14	480	–	–	10600	–	–	–	3	10
15	480	–	–	8000	2890	–	–	3	2
16	840	–	–	9600	–	1	–	2	1½
17	720	–	–	3200	2600	–	–	1	2
18	360	–	–	9600	2600	30	–	–	3
19	520	–	–	13000	2500	–	36	–	4
20	720	–	11200	–	2500	15	–	–	3
21	540	–	–	9600	2500	9	–	–	98
22	360	–	100	6400	2500	–	–	–	98
23	540	–	–	8400	2500	–	–	–	98
24	480	–	–	8000	2500	–	–	–	146
25	540	–	–	11200	1530	–	–	6	1 98
26	500	–	–	16000	1530	18	6	1	147
27	720	7		11200	2100	12	7	1	–
	[illegible]	–	[illegible]	[illegible]	[illegible]	191	[illegible]	23	715

SA 068126

CLAY ROTO-DIP USAGE (gallons

DATE	#5	#6	Total
4-30-79	5731	1997	7728
5-1	6590	1668	8258
2	3469	1815	5284
3	1064	1630	2694
4	1110	3395	4505
5	1328	3295	4623
7	1164	3127	4291
8	2839	4740	7579
9	3746	4129	7875
10	4606	3269	7875
11	4800	3760	8560
12	5256	1658	6914
13	8185	3703	11888
14	5748	5021	10769
15	3321	4362	7683
16	4832	3245	8077
17	1683	4310	5993
18	2705	779	3484
19	1428	3757	5185
20	1801	2712	4513
21	1113	1863	2976
22	1912	2026	3938
23	2959	4732	7691
	77390	70993	148383
24	3488	6103	9591
25	1675	1784	3459
26	2040	4085	6125
27	1359	3196	4555

SB 068127

Harry Jogler

MAY 1979 Mill "E" Chemicals 1.48

DATE	SOY FLOUR	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX +K. DOW636	LATEX Dm DOW636	TSPP	ULTRA BLUE	PAREZ RESIN	RED BXP
30+1	–	–	16.50	375.00	2.08	–	24.40	–	1.05	–	–	–
2+3	–	–	17.60	400.00	2.08	–	96.00	–	1.12	–	–	–
4+5	–	–	16.50	375.00	2.34	–	90.00	–	1.85	–	–	–
7+8	–	–	8.80	200.00	1.56	–	48.00	–	.70	–	–	–
9+10	–	–	17.60	400.00	2.08	–	102.00	–	1.12	–	–	–
11+12	–	–	17.60	400.00	2.08	–	8.00	–	2.00	–	–	–
14+15	–	–	17.60	400.00	2.08	–	–	–	1.12	–	–	
16+17	–	–	16.50	400.00	1.95	–	–	–	1.05	–	–	–
18+19	–	–	15.40	350.00	1.82	–	–	–	.98	–	–	
21+22	–	–	15.40	375.00	1.82	–	66.00	–	1.08	–	–	–
	–	–	151.50	[illegible]	19.89	–	434.40	–	12.07	–		
23-24+25	–	–	27.80	450.00	13.54	–	66.00	–	8.27	–	–	–
	–	–	[illegible]	[illegible]	[illegible]	–	[illegible]	–	[illegible]	–	–	–
			✓	✓	✓		240.19 ✓		✓			

[redacted]

Bryant Coating Chemicals

AREZ ESIN	RED BXP	#	GAL AMMONIA	SALT	BORAX	GAL NOPCO 178	# FORMALY-DEHYDE	# Procotc Protein	LATEX DOW	# Dm 620	Stanley STACOTE 40	DYLEX LATEX	Dm SORNIN LATEX
–	–		315	3000	225	68	525	4500	–		–	5750	–
–	–		336	8000	240	68	450	4800	–		–	–	–
	–		315	7000	225	78	375	4500	–		–	–	–
–	–		168	3500	120	76	200	2400	–		–	–	–
–	–		336	–	240	68	400	4800	–		–	–	–
–	–		336	4000	240	90	400	4800	8625		–	–	–
–		/	336	8000	240	95	425	4800	8400		–	–	–
–	–		315	7000	225	110	375	4500	8625		–	–	–
–	–		294	–	210	65	350	4200	8050		–	–	–
–	–		294	2500	210	85	350	4200	6240		–	–	–
–		/	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		–	[illegible]	–
–	–		365	–	100	63	1226	4200	–		–	–	–
–	–		341[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	47700	[illegible]		–	[illegible]	–
		/	24191			6694							

635853

SA 068129

Mach 5+6
Mill C

May 1979 Pulp Used In Hydropulper

DATE	Dryden Semi Bl.	NAHOLA	MARATHON	Superior	Pr. George	Celgar	Crest-Brook	Bruns-wick	West-VACO	KAMLOOPS	Total	Dryde 7.B
	481	462	487	507	467	477	520	489	327	481		397
4-30 79	30	20	76	–	–	–	–	–	–	–	331	–
5-1	110	–	153	–	–	–	–	–	–	–	351	–
2	–	11	40	–	–	160	144	–	–	–	414	–
3	–	4	–	–	–	311	30	–	–	–	383	–
4	–	37	–	–	–	248	63	–	–	–	348	–
5	–	34	160	6	–	49	39	–	–	6	294	–
	140	106	429	6	–	768	276	–	–	6	2121	–
7	–	200	16	55	–	–	–	–	–	55	326	–
8	–	77	76	48	–	–	–	–	–	76	366	–
9	–	30	93	50	–	–	–	–	–	60	400	–
10	–	–	–	252	–	–	–	–	–	–	324	–
11	–	–	–	141	140	–	–	–	–	24	355	–
12	–	–	–	–	95	120	–	–	–	88	351	–
13	–	–	–	–	–	125	–	–	–	98	461	–
	–	307	185	546	235	245	–	–	–	401	2583	–
14	36	–	–	–	–	120	–	–	–	–	351	–
15	54	–	–	–	–	54	–	–	–	–	268	–
16	51	–	–	–	–	63	–	–	–	–	233	–
17	–	–	–	–	–	95	–	–	–	–	260	–
18	–	156	–	–	–	162	–	–	–	–	318	–
19	–	102	–	–	–	–	–	–	–	–	252	–
20	–	36	50	–	–	–	–	–	–	–	300	–
	141	294	50	–	–	494	–	–	–	–	1982	–
21	–	–	260	–	–	–	–	–	–	–	368	–
22	–	–	130	–	–	–	–	–	–	–	362	–
23	120	–	180	–	–	–	–	–	–	–	345	–
24	102	52	–	–	–	–	–	–	–	–	262	–
25	78	–	–	–	–	12	–	–	–	–	272	–
26	102	–	25	–	–	27	–	–	–	–	288	–
27	108	–	12	–	–	23	–	–	–	–	329	–
	510	52	607	–	–	62	–	–	–	–	2226	–
	791	759	1271	552	235	1569	276	–	–	407	8912	–
	380471	350658	618977	279864	109745	748413	143520	–	–	195767	4348253	–

SA 068130

Total	397 Dryden T.B.	587 Gd. Prairie	397 Eddy	560 Buckeye	518 Alphanier	500 Allied S.W.	515 Domtar	497 Allied H.W.	478 A. Albert	418 Potlatch	510 Pontiac	414 Terrace Bay
331	–	–	–	–	–	105	–	–	100	–	–	–
51	–	–	–	–	–	88	–	–	–	–	–	–
414	–	36	–	–	–	23	–	–	–	–	–	
288	–	–	–	–	–	38	–	–	–	–	–	–
348	–	–	–	–	–	–	–	–	–	–	–	
294	–	–	–	–	–	–	–	–	–	–	–	–
2121	–	36	–	–	–	254	–	–	100	–	–	
326	–	–	–	–	–	–	–	–	–	–	–	–
366	–	–	–	–	–	89	–	–	–	–	–	–
400	–	–	–	–	–	167	–	–	–	–	–	
324	–	–	–	–	–	78	–	–	–	–	–	–
355	–	–	–	–	–	50	–	–	–	–	–	–
351	–	–	–	–	–	48	–	–	–	–	–	
461	–	–	–	–	–	68	–	–	–	–	–	170
2583	–	–	–	–	–	494	–	–	–	–	–	170
351	–	63	–	–	–	72	–	–	–	–	–	60
368	–	68	–	–	–	92	–	–	–	–	–	–
233	–	33	–	–	–	86	–	–	–	–	–	–
260	–	49	–	–	–	116	–	–	–	–	–	–
318	–	–	–	–	–	–	–	–	–	–	–	–
252	–	48	–	–	–	–	–	–	102	–	–	–
300	–	124	–	–	–	–	–	–	90	–	–	–
1982	–	385	–	–	–	366	–	–	192	–	–	60
368	–	–	–	–	–	–	–	–	108	–	–	–
312	–	–	–	–	–	–	–	–	36	–	–	176
345	–	–	–	–	–	–	–	–	–	–	–	45
263	–	–	–	–	–	68	–	40	–	–	–	–
272	–	–	–	–	–	148	–	34	–	–	–	–
288	–	–	–	–	–	113	–	21	–	–	–	–
329	–	–	–	–	–	144	–	42	–	–	–	–
2226	–	–	–	–	–	473	–	137	144	–	–	241
8912	✓ –	✓ 421	– ✓	–	–	✓ 1587	–	✓ 137	✓ 436	–	–	471
1248252	–	247137	–	–	–	793500	–	68089	217128	–	–	14194

5A

868131

Mach 7,8 - 9
Mill D
May 1979

DATE	507 Superior	481 Kamloops	397 Simpson	462 Nahola	487 Marathon	520 Gestbrook	Gd. 587 Prairie	500 Allied S.W.	327 West-Vaco	467 Pr. George	Total	49 Alli. H.W.
4-30 79	-	-	-	-	-	-	160	188	-	-	408	
5-1	196	-	-	-	-	-	40	128	-	-	384	
2	40	-	-	-	-	-	-	164	-	-	372	
3	-	-	-	-	-	-	-	116	-	-	348	
4	-	-	-	-	-	-	-	128	-	-	348	
5	-	-	-	-	-	-	-	120	-	-	264	
	236	-	-	-	-	-	200	844	-	-	2124	
7	-	-	-	56	-	-	-	104	-	-	372	
8	-	-	-	112	-	-	-	-	-	-	360	
9	-	-	-	52	-	-	-	48	-	-	208	
10	-	-	-	-	-	-	72	-	-	-	288	
11	144	-	-	-	-	-	120	-	-	-	294	-
12	45	15	-	-	-	45	96	-	-	-	264	-
13	-	15	-	-	-	45	40	-	-	-	100	-
	189	30	-	220	-	90	328	152	-	-	1886	
14	-	80	-	-	-	-	40	-	-	-	120	-
15	-	48	-	-	-	-	52	-	-	-	152	-
16	-	76	-	-	-	-	-	48	-	-	268	-
17	88	158	-	-	-	-	-	-	-	-	246	-
18	190	-	-	-	-	-	-	-	-	-	190	-
19	-	-	-	-	-	120	-	-	-	-	172	-
20	-	-	-	-	-	-	-	-	-	-	336	-
	278	362	-	-	-	120	92	48	-	-	1384	-
21	-	16	-	-	-	24	-	-	-	-	108	-
22	-	150	-	-	-	-	-	70	-	-	252	
23	-	18	-	-	-	-	-	80	-	-	332	
24	-	-	-	-	-	-	-	172	-	-	312	
25	-	-	-	-	-	-	-	234	-	-	384	
26	-	-	-	-	-	-	-	210	-	-	336	
27	-	-	-	-	-	-	-	188	-	-	300	
	-	184	-	-	-	24	-	954	-	-	2024	
	703	576	-	220	-	234	620	1998	-	-	7418	
	356421	277056	-	101640	-	121680	363940	999000	-	-		387

5A 068132

Total	497 ALLIED H.W.	477 Celgar	397 Dryden F.B.	489 BRUNS-WICK	397 Eddy	481 Dryden SEMI BL.	475 Port Hudson	434 Fort FRANCES	512 NORAL	462 Missoula	478 Pr ALBERT	507 Domtar	114
408	60	–	–	–	–	–	–	–	–	–	–	–	
384	20	–	–	–	–	–	–	–	–	–	–		
72	40	64	–	–	64	–	–	–	–	–	–		
348	36	92	–	–	104	–	–	–	–	–	–	–	
348	48	52	–	–	108	–	–	–	–	–	12	–	
264	32	–	–	–	84	–	–	–	–	–	28	–	
3124	236	208	–	–	360	–	–	–	–	–	40	–	
372	40	–	–	–	12	76	–	–	–	–	84	–	
360	28	–	–	–	–	220	–	–	–	–		–	
208	16	–	–	–	72	20	–	–	–	–	–	–	
288	32	104	–	–	80	–	–	–	–	–	–	–	
294	–	22	–	–	8	–	–	–	–	–	–	–	
264	–	15	–	–	–	–	–	–	–	–	–		48
100	–	–	–	–	–	–	–	–	–	–	–	–	
1886	116	141	–	–	172	316	–	–	–	–	84		48
120	–	–	–	–	–	–	–	–	–	–	–	–	
152	–	–	–	–	–	–	–	–	–	–	52		
268	–	–	–	–	–	–	–	–	–	–	48		
246	–	–	–	–	–	–	–	–	–	–	–		
190	–	–	–	–	–	–	–	–	–	–	–	–	
172	–	–	–	–	–	–	–	–	–	–	52	–	
236	–	–	–	–	–	–	–	–	–	–	236	–	
1384	–	–	–	–	–	–	–	–	–	–		–	
108	–	–	–	–	–	–	–	–	–	–	–		68
252	32	–	–	–	–	–	–	–	–	–	–		
332	24	–	–	–	–	–	–	–	–	–	174		
312	110	–	–	–	18	–	–	–	–	–	–	–	
384	90	–	–	–	60	–	–	–	–	–	–	–	
336	84	–	–	–	30	–	–	–	–	–	12	–	
300	88	–	–	–	–	–	–	–	–	–	34		
3024	428	–	–	–	108	–	–	–	–	–	210		68
7418	780	349	–	–	640	316	–	–	–	–	722		116
	387660	166473	–	–	254080	151996	–	–	–	–	359536	58812	19

5H 8881133

Mach 5+6
Mill C
May 1979

Chemicals Used In Beater

DATE	AIUM#	SIZE#	CLAY GAL	ANSILEX	SCM	NALCO 680	Titanium	ZEALEX	Ti-PURE	Du-Pont	Total	AX
4-30-79	350	675	8550	2950	—	128	7000	—	—	—	19653	—
5-1	350	930	6500	2250	—	148	1500	—	—	—	15428	3
2	350	1606	1800	975	—	188	2050	—	—	—	6969	—
3	280	2025	300	2400	6200	140	—	—	—	—	11345	—
4	245	1550	—	2100	5600	136	—	—	—	—	9631	—
5	227	1369	—	1950	5200	116	—	—	—	—	8862	—
	1802	8155	17150	12625	17000	856	10550	—	—	—	71888	37
7	297	844	7350	2550	6800	154	—	—	—	—	17995	—
8	420	773	8100	850	—	162	1325	—	—	—	11630	—
9	385	654	8500	1100	—	170	1300	—	—	—	12109	—
10	385	235	4000	2000	3350	144	—	—	—	—	10276	
11	385	178	2200	1100	1100	152	—	—	—	—	5115	—
12	315	272	1800	900	900	152	—	—	—	—	4339	—
13	315	480	1800	900	900	160	—	—	—	—	4555	—
	2502	3436	33750	9400	13050	1094	2625	—	—	—	66019	
14	368	36	7700	2150	2850	142	600	—	—	—	14104	—
15	280	228	6000	1900	3400	120	—	—	—	—	11128	—
16	333	216	5500	1800	3125	106	—	—	—	—	11080	—
17	210	222	6000	3000	7200	120	—	—	—	—	16752	—
18	280	527	6000	3600	8600	128	—	—	—	—	19135	—
19	245	735	5500	3200	6750	116	—	—	—	—	16546	—
20	280	1516	2375	3025	6800	146	475	—	—	—	14617	—
	1996	3480	39075	18675	38725	878	1075	—	—	—	104162	—
21	222	2030	—	1916	4331	165	—	—	—	—	8664	—
22	280	5800	—	2000	4000	172	—	—	—	—	12252	—
23	280	2725	—	2000	—	144	3700	—	—	—	8849	—
24	280	998	5400	2000	—	148	3600	—	—	—	12426	—
25	175	705	4350	4100	—	128	2200	—	6200	—	17858	—
26	280	775	5266	5000	—	136	4700	—	6000	—	22157	—
27	280	918	5800	4050	—	148	—	—	9300	—	20496	—
	1797	13951	20816	21066	8331	1041	14200	—	21500	—	102702	—
	8097	29022	110791	61766	77106	3869	28450	—	21500	—	344771	3
			+10 / 1107910									

SA 068134

[redacted]

(4)

Total	Ax	alpha Size
76.53	–	–
5428	3750	–
769	–	–
11345	–	–
7631	–	–
3862	–	–
[illegible]88	3750	–
17995	–	–
11630	–	–
2109	–	–
10276	162	–
5115	–	–
4339	–	–
4555	–	–
6019	162	–
14104	–	258
1928	–	–
11080	–	–
16752	–	–
19135	–	–
16546	–	–
14617	–	–
041 62	–	258
8664	–	–
12252	–	–
8849	–	–
2426	–	–
17858	–	–
2157	–	–
0496	–	–
2702	–	–
14771	3912	258

SA 868135

Mach. 7, 8 + 9
Mill D
May 1979

Chemicals Used In Beater

DATE	ALUM #	SIZE #	CLAY CAL	ANSILEX	SCM	NALCO 680	AX	TI-PURE	CAMEL WITE	CALICUM CARBONATE	Total
4-30-79	1650	1293	5620	1100	3400	198	–	–	4800	–	18061
5-1	2275	2235	5660	5950	13100	273	–	150	–	–	39643
2	2175	1830	6420	8850	13600	261	–	2100	–	–	34236
3	2300	1585	9190	3600	8550	276	–	–	–	–	25501
4	2650	1736	9250	2550	6850	300	–	–	–	–	23636
5	2026	2039	7325	3525	9975	244	–	–	–	–	25147
	13076	10718	43465	25575	54475	1552	–	2250	4800	–	156224
7	2350	2411	7250	4950	10550	300	–	–	–	–	27836
8	2665	1718	5160	5300	10500	384	2050	–	–	–	27927
9	2456	1224	2870	5338	10512	398	2250	–	–	–	25210
10	2865	1670	8850	3800	6400	399	–	–	–	–	24084
11	2915	1890	8500	3550	6600	444	–	–	–	–	23899
12	2992	2020	5800	5450	11700	513	–	–	–	–	28475
13	2345	1870	1400	6350	18700	402	–	–	–	–	31067
	18588	12803	39830	34738	74962	2840	4300	–	–	–	188498
14	2885	1904	3790	4725	15450	495	–	–	–	–	29249
15	3824	2134	1900	7500	14175	655	–	–	–	–	31188
16	3330	2040	525	6750	12350	534	–	–	–	–	25529
17	4050	2764	5725	5475	12750	645	–	–	–	–	31409
18	3360	2214	6540	6300	11300	546	–	–	–	–	30260
19	3430	2590	7000	7450	12950	498	–	–	–	–	33918
20	3465	2715	5200	5800	12600	594	–	–	–	–	30374
	24344	16361	30680	44000	91575	3967	–	–	–	–	210927
21	2800	2105	4700	5950	14150	480	–	–	–	–	30185
22	2595	1795	3450	5100	13450	463	–	–	–	–	26859
23	3885	2743	4080	5850	10550	666	–	–	–	–	27774
24	3310	1740	6470	2250	4500	588	–	–	–	–	18858
25	3410	2140	8470	3850	7300	660	–	–	–	–	36080
26	3539	2066	7705	5225	5750	637	–	–	–	–	26372
27	3408	1833	11600	5150	7500	609	–	–	–	–	33100
	22947	14422	46475	33375	65200	4103	–	–	–	–	188221
	78955	54304	160450	137688	286212	12461	4300	2250	4800	–	743870
			160450								

Titan

(2)

Total	Titanium	Zealex	Alpha-size
3061	–	–	–
39643	–	–	–
34236	–	–	–
25501	–	–	–
23636	300	–	–
[illegible]147	–	–	13
36224	300	–	13
27836	–	–	25
27927	–	–	150
25210	–	–	162
24084	100	–	–
23899	–	–	–
28425	–	–	–
21067	–	–	–
38498	100	–	337
29249	–	–	–
20188	–	–	–
25529	–	–	–
31409	–	–	–
30260	–	–	–
33918	–	–	–
30374	–	–	–
30927	–	–	–
20185	–	–	–
[illegible]52	–	–	–
27774	–	–	–
18858	–	–	–
36080	250	–	–
26372	1450	–	–
32100	–	–	–
28221	1700	–	–
43870	2100	–	350

No R+D Trials
Jack Shockly
MAY 1979

Blade Coater Chemicals

DATE	LATEX 673 GAL	# Defoamer D7-122	Stearate DC-111 gal	Kelgin HV#	TSPP#	CLAY gal HTWAX	gal Ammonia	Uvitex	# Camil WITE	# LATEX 6107 gal	PG-208#	74-E PENC
4-30-79	961	16	40	60	114	2500	48	–	–	–	–	–
5-1	434	8	20	30	32	1250	12	–	–	–	–	–
2	217	4	10	15	34	625	6	–	9100	–	200	8
3	–	–	–	–	7	–	1	–	3500	–	–	[illegible]
4	651	12	30	45	48	1875	18	78	–	–	–	–
7	434	8	20	30	32	1250	12	68	–	–	–	–
8	434	4	20	30	32	1250	12	68	–	–	–	–
9	651	12	30	45	48	1875	18	102	–	–	–	–
10	434	8	20	30	32	1250	12	68	–	–	–	–
11	651	12	30	45	48	1875	18	102	–	–	–	–
12	217	4	10	15	16	625	6	34	–	–	–	–
14	434	8	20	30	32	1250	12	68	–	–	–	–
15	651	12	30	45	48	1875	18	102	–	–	–	–
16	514	12	28	30	32	1420	22	–	600	–	800	–
17-18	1400	36	82	75	80	3805	70	–	2700	–	3700	–
19-20	868	16	40	60	64	2500	24	–	–	–	–	–
21	434	8	20	30	32	1250	12	51	–	–	–	–
22	434	8	20	30	32	1250	12	68	–	–	–	–
23	434	8	20	30	32	1250	12	3	–	–	–	–
24-25-26	R+D Trial											
27	651	12	30	45	48	1875	18	–	–	–	–	–
	10904	208	[illegible]	720	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	–	41[illegible]	
	43397		4207			35560	–					

SA 068138

76-208 #	74-B PENCORE	STAYSIZE 112#	CLINSIZE 173 B	NOPCIDE 120	NOPCOCIDE K GAL	CALGON T#	GLYCERINE	CELLOSIZE	CELLO # LOSE CMC-7L	Scriptest 720 GAL	FC-807 gal	239 # GAL ATLAS
–	–	3000	–	–	–	–	–	–	–	170	50	–
–	–	1500	–	–	–	–	–	–	–	–	–	–
[illegible]0	800	3600	–	–	10	–	20	–	–	–	–	54
	300	–	–	–	4	–	16	50	–	–	–	21
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
800	–	–	–	4	3	6	–	–	–	–	–	–
3900	–	–	–	–	9	27	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	600	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	200	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
100	1100	5700	–	4	25	33	[illegible]	[illegible]	–	170	[illegible]	[illegible]
				40	250					386	[illegible]	[illegible]

SA 068139

x 433 D7-122 x10 gal.

620 LATEX gal.	722 LATEX gal	DZ 122 NS#	BORAX #	LV PROTEIN	SODIUM NITRATE	PREZ 707 gal	H.T. CLAY DRY	MISSIPPI CLARK	Hyb. CLAY	FORMULA 2036	Elvanol
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	25	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	700	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	75
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	700	—	—	—	—	25	7[illegible]

SA 068140

a Arnold - cut 250

June 1979 Mill "C" Chemicals

DATE	ALUM	CLAY	SIZE	CLINTON	PARACOL	STAZYME-J	STAYSIZE	TITANIUM	ANSILEX	DEFOAMER	CP-7	NALCO-
	GAL. 3960# TANK	GAL. X .25	675B LBS.	GAL.	WAX	BAGS X 100	112 LBS X 100	LBS.	LBS.	KOCH GAL	GAL.	LBS
5-28 79	7 00	277 20	10 50	—	—	—	—	96 75	44 50	10	2 00	
29	10 00	237 60	23 15	—	—	—	—	47 50	17 50	10	2 00	
30	2 50	118 80	5 60	—	—	—	—	20 50	9 50	5	1 75	
31	11 00	475 20	11 80	—	—	—	—	69 00	34 00	10	2 50	
6-1 79	8 50	514 80	8 75	—	—	—	—	84 50	37 50	10	2 75	
2	11 00	198 00	11 30	—	—	80 00	—	106 00	51 00	10	1 50	
3	9 50	475 20	12 40	—	—	108 00	—	45 00	20 00	10	1 50	
4	8 00	277 20	19 40	—	—	60 00	—	4 00	—	10	2 00	
5	11 50	396 00	14 28	—	—	84 00	—	15 50	—	10	2 50	
6	9 50	237 60	9 02	—	—	96 00	—	81 25	41 75	10	2 00	
7	7 50	435 60	8 35	—	—	96 00	—	28 00	13 50	10	3 00	
8	7 00	237 60	23 85	—	—	60 00	—	11 75	—	10	2 50	
9	9 50	277 20	27 89	—	—	64 00	—	11 00	—	10	2 50	
10	9 50	277 20	21 07	—	—	50 00	—	10 00	—	10	2 50	
11	7 50	396 00	10 38	—	—	96 00	—	18 00	—	10	2 00	
12	9 50	475 20	10 38	—	—	108 00	—	57 00	17 00	10	2 50	
13	10 50	514 80	10 70	—	—	96 00	—	58 00	25 00	10	2 50	
14	9 00	316 80	10 70	—	—	84 00	—	106 50	53 25	10	2 00	
15	7 00	118 80	21 15	—	—	46 00	10 00	50 00	25 00	15	1 25	
16	9 50	118 80	21 76	—	—	48 00	—	34 50	18 00	15	1 75	
17	10 00	237 60	22 15	—	—	60 00	—	12 50	10 00	15	1 00	
18	9 00	316 80	11 25	—	—	72 00	—	56 00	33 50	15	2 00	
19	6 50	435 60	8 51	—	—	108 00	—	73 50	41 25	15	3 00	
20	8 00	554 40	10 12	—	—	144 00	—	70 00	40 00	15	2 50	
21	9 00	435 60	5 70	—	—	142 00	—	65 00	37 00	15	[illegible]	
22	8 50	475 20	9 88	—	—	118 00	24 00	61 25	27 00	15	2 00	
23	10 00	514 80	10 15	—	—	120 00	—	22 00	15 50	15	2 00	
24	8 50	435 60	10 17	—	—	108 00	—	34 50	22 25	15	3 50	
25	10 50	435 60	8 37	20 00	—	64 00	—	26 00	17 50	15	3 00	
26	7 00	396 00	9 45	96 00	—	—	—	60 50	29 00	15	2 00	
27	7 50	277 20	8 78	108 00	—	—	—	81 50	35 50	15	2 00	
28	16 50	237 60	16 40	32 00	—	28 00	21 00	61 50	24 00	15	2 00	
29	14 00	356 40	11 05	—	—	84 00	—	70 50	26 50	15	1 50	
30	3 50	277 20	11 45	—	—	108 00	—	81 00	30 50	15	1 50	
	30[illegible]	1176[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	17[illegible]		[illegible]	[illegible]	

SA 068141

GAL. P-7 gal.	LBS. NALCO-680	LBS. PARAMEL	TANK ALUM-ON-TANK	GAL. CLAY TANK	LBS. ZOLEX	753 CLINSIZE	BAGS SODIUM NITRATE	100 x LBS DOUGLAS STARCH	BAGS SALT	BAGS Sta cote 120	MEBSIZE	GAL ALPHO SIZE
200	126	—	3	2200	—	—	—	7800	—	—	—	—
200	176	30340	4	1800	—	—	—	4800	—	—	—	—
75	48	5000	1	1200	—	—	—	1200	—	—	—	—
250	156	2500	4	3800	—	—	—	1200	—	—	—	—
275	152	—	5	4200	—	—	—	12000	—	—	—	—
150	168	—	4	1500	—	—	—	2800	—	—	—	—
150	164	3000	4	4000	—	—	—	—	—	—	—	—
200	152	29930	4	1700	—	—	—	—	—	—	—	—
250	162	8000	4	4200	—	—	—	—	—	—	—	—
200	120	17000	4	1900	—	—	—	—	—	—	—	—
300	156	—	3	3700	—	—	—	—	—	—	—	—
250	178	25360	3	2300	—	—	—	—	—	—	—	—
250	188	28260	4	2100	—	—	—	—	—	—	—	—
250	172	30890	4	2100	—	—	—	—	—	—	—	—
200	136	—	3	2700	—	—	—	—	—	—	—	—
250	156	—	4	4200	—	—	—	—	—	—	—	—
250	148	—	4	4100	—	—	—	—	—	—	—	—
200	142	500	4	1900	—	—	—	—	—	—	—	—
125	168	28980	3	1300	—	—	—	—	—	—	—	—
75	176	31660	4	1000	—	—	—	—	—	—	—	—
100	188	32300	4	1500	—	—	—	—	—	—	—	—
200	148	18100	4	2900	—	—	—	—	—	—	—	—
300	150	—	3	4000	—	—	—	—	—	—	—	—
250	160	—	3	4500	—	—	—	—	—	—	—	—
300	148	—	4	4000	—	—	—	—	—	—	—	—
200	146	—	3	3900	—	—	—	—	—	—	—	—
10	136	—	4	4200	—	—	—	—	—	—	—	—
50	138	—	3	3900	—	—	—	—	—	—	—	—
100	104	—	4	3600	—	—	—	—	—	—	—	—
200	120	—	3	3400	—	—	—	—	—	—	—	—
200	112	—	3	2400	—	—	—	—	—	—	—	—
200	140	9180	7	1900	—	—	—	—	65	—	—	—
150	108	—	5	3000	—	—	—	—	—	—	—	—
150	104	—	2	2200	—	—	—	—	—	—	—	—
7500	4966	300990	125	97300	—	—	—	29800	65	—	—	—
3150		24079	✓					✓				

SA 068142

Oskar Dikerts
Ext 277

June 1979 Mill "D" Chemicals

DATE	120 x tank size GAL	C-7 GAL drums	LBS. J100# Bags	100# BAG CLINCOSS	50# BAGS Titanium	71-M GAL NALCO	CLAY gal COUNTER	SODIUM ALUMINATE	B-64 inches GLUE
5 28-79	660	–	–	16000	2200	1	6	–	–
29	360	–	–	11200	2170	12	7	1	98
30	540	–	–	9600	1150	13	6	1	196
31	360	–	–	16000	2270	15	5	–	–
6-1 79	480	–	–	11200	2100	1	–	–	–
2	240	–	–	12800	2000	30	–	–	2
3	480	–	–	14400	2200	1	–	–	2
4	520	–	–	12800	2200	39	–	–	3
5	500	–	–	8000	2300	1	–	–	3
6	480	–	–	9600	2100	21	–	–	3
7	480	–	–	12800	2100	15	–	–	3
8	360	–	–	9600	2100	15	–	–	2
9	480	–	–	12400	2100	24	–	–	2
10	720	–	–	16000	2200	–	–	–	2
11	360	–	–	8000	2000	–	–	–	–
12	240	–	–	11200	2200	1	–	–	2
13	540	–	–	16000	2200	36	–	–	–
14	–	–	–	16000	2000	–	–	–	–
15	540	–	–	16000	2200	9	–	–	98 gal.
16	540	–	–	13600	2500	12	–	–	–
17	720	–	–	13600	–	–	–	–	98 gal.
18	–	–	–	–	–	–	–	–	–
19	720	–	–	11200	2200	–	–	–	–
20	540	–	11200	–	2200	6	–	–	2
21	540	–	–	6400	2200	–	–	–	4
22	540	–	–	9600	2070	–	10	1	97
23	540	–	–	11200	1520	1	7	1	98
24	500	–	–	14400	650	39	8	1	196
25	540	–	–	15000	630	48	–	–	147
26	–	–	–	–	–	–	–	–	–
27	540	–	–	9600	1540	42	5	1	147
28	540	–	–	13200	2300	9	–	1	245
29	520	–	–	15400	2300	1	–	–	2"
30	520	–	–	12400	2000	1	–	–	2"
	[illegible]	–	[illegible]	235200	[illegible]	393	54	7	1454

SA 068143

(gallons

CLAY Roto-Dip Usage

DATE	#5	#6	TOTAL
5-28 79	1541	3014	4555
29	3005	1845	4850
30	4108	220	4328
31	3834	4913	8747
6-1-79	3946	6312	0258
2	255	2269	2524
3	3235	6260	9495
4	3356	6573	9929
5	4917	4930	9847
6	1680	3063	4743
7	4235	2658	6893
8	4730	1668	6398
9	4312	2399	6711
10	4848	3477	8325
11	5451	2980	8431
12	6132	2294	8426
13	5920	722	6642
14	3165	2092	5257
15	2370	2141	4511
16	2848	1245	4073
17	3081	1675	4756
18	4586	1654	6240
19	4740	2403	7143
20	5759	2492	8251
21	5925	1423	7348
22	3066	3354	6420
23	5931	2883	8814
24	5514	2479	7993
25	5355	1803	7158
26	2944	1576	4520
27	2270	1176	3446
28	1666	1353	3019
29	1706	3430	5136
30	1254	2854	4108
	127[illegible]	916[illegible]	[illegible]15

SA 068144

Harry Vogler Cut 202 or 205

June 1979 Mill "E" Chemicals: 28

DATE	SOY Flour	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMID WITE	CAUSTIC SODA	LATEX H. Dow 636	LATEX DM Dow 636	TSPP	ULTRA BLUE	PAREZ RESIN	RED BXP #
28+29	—	—	16 50	37500	195	—	9000	—	105	—	—	—
31+1	—	—	18 70	42500	221	—	—	—	175	—	—	—
4+5	—	—	16 50	40000	195	—	—	—	105	—	—	—
6+7	—	—	1760	40000	208	—	6900	—	112	—	—	—
8	—	—	8 80	22500	104	—	4600	—	76	—	—	—
11-12	—	—	1760	40000	208	—	9200	—	112	—	—	—
13-14	—	—	1650	37500	195	100	2400	—	105	—	—	—
15	—	—	8 80	20000	104	—	—	—	110	—	—	—
18-19	—	—	1760	40000	195	—	—	—	112	—	—	—
20-21	—	—	1760	45000	208	—	—	—	112	—	—	—
22	—	—	770	20000	91	—	1800	—	86	—	—	—
25-26	—	—	1650	37500	195	—	2400	—	105	—	—	—
27-28	—	—	1760	45000	208	100	—	—	112	—	—	—
29	—	—	8 80	25000	104	—	—	—	70	—	—	—
30	—	—	—	—	—	—	—	—	—	—	—	—
			200 90	492500	2431	200	36300	—	1497	—	—	—
			✓	✓	✓	✓	17424 ✓		✓			

SH 068145

PAREZ RESIN	RED BXP #	GAL AMMONIA	Sodium Nitrate SALT	BORAX	GAL NOPCO 178	# FORMALY-DENYDE	# Procote PROTEIN	# Dm. LATEX DOW 620	Dm. STANLEY DOW 620	DOW LATEX 636 (Steel)	# DYLEX LATEX	Dm SORNIN LATEX
—	—	315	7500	225	90	375	4500	—	—	—	—	—
—	—	337	1500	255	110	425	5100	—	—	10200	—	—
—	—	315	7500	225	68	375	4500	—	—	—	—	—
—	—	336	3500	240	60	400	4800	—	—	5800	—	—
—	—	160	—	120	35	200	2400	—	—	—	—	—
—	—	336	8000	240	100	400	4800	—	—	—	—	—
—	—	294	3500	225	75	375	4500	—	—	6000	—	—
—	—	168	3500	120	110	200	2400	—	—	4600	—	—
—	—	336	—	240	45	400	4800	—	—	8625	600	—
—	—	320	7500	240	60	400	4800	—	—	2300	7200	—
—	—	147	3500	105	60	175	2100	—	—	2875	—	—
—	—	315	8000	225	60	375	4500	—	6325	—	—	—
—	—	130	—	325	60	400	4800	9200	—	—	300	—
—	—	—	6500	120	60	200	2400	4600	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	3527	60000	2505	993	4700	56400	13500	6325	46400	8100	—
		25656 ✓	✓	✓	7676 ✓	✓	✓	✓	✓	✓	✓	

761094

SH 865146

Mach. 5-6
Mill c

June 1979 Pulp Used In Hydropulper

DATE	Dryden Semi Bl. 481	NAHOLA 463	MARATHON 487	SUPERIOR 507	Pr. George 467	CELGAR 477	Crestbrook 520	Bruns-wick 489	WEST-VACO 327	KAMLOOPS 481	TOTAL	Dryden F.B. 39
5-28 79	30	—	—	—	—	72	—	—	—	—	277	—
29	—	—	—	—	—	356	—	—	—	—	390	—
30	—	—	—	—	—	144	—	—	—	—	154	—
31	—	—	—	—	—	133	—	—	—	—	378	—
1	36	—	—	—	—	54	—	—	—	—	354	—
2	156	—	—	—	—	48	—	—	—	—	349	—
3	30	—	—	—	—	168	—	—	—	—	319	—
4	—	—	—	—	—	212	—	—	—	55	322	—
5	—	—	—	—	—	—	—	—	—	149	333	—
6	16	—	—	—	—	38	—	—	—	75	372	—
7	—	—	—	—	—	20	—	—	—	—	384	—
8	—	—	—	—	—	170	—	—	—	—	372	—
9	—	—	—	—	—	—	—	—	—	—	401	—
10	—	—	—	—	—	—	—	—	—	—	406	—
11	16	—	—	—	—	440	—	—	—	279	325	—
12	—	41	—	—	—	—	—	—	—	—	306	—
13	—	157	—	—	—	—	12	—	—	—	346	—
14	—	126	—	—	—	—	110	—	—	—	344	—
15	—	—	—	—	—	—	120	—	—	—	402	—
16	—	18	—	—	—	—	—	—	—	—	444	—
17	—	55	—	—	—	—	—	—	—	—	421	—
18	—	143	—	—	—	—	142	—	—	—	419	—
19	—	247	—	—	—	—	—	—	—	—	355	—
20	—	256	—	—	—	—	—	—	—	—	488	—
21	—	12	—	—	—	40	—	—	—	80	336	—
22	—	252	—	15	—	—	—	—	—	80	363	—
23	—	60	92	—	—	—	—	—	—	118	314	—
24	—	170	170	—	—	—	—	—	—	143	313	—
	—		265	15	—	40	—	—	—	131		—
25	—	—	—	—	—	—	—	—	—	273	273	—
26	—	—	—	—	—	54	—	—	—	23	278	—
27	—	—	—	—	—	91	—	—	—	—	344	—
28	—	—	—	—	—	88	—	—	—	—	252	—
29	—	—	—	—	—	93	—	—	—	—	227	—
30	—	14	—	—	—	96	—	—	—	—	244	—
	—	14	—	—	—	—	—	—	—	176		—
	162	1531	503	15	—	1571	242	—	—	776	11216	—
	10.70	280.22	15.14	76.05	—	8953.29	125.40	—	—	1167	67.56	—

Total	397 Dryden T.B.	587 Gd. Prairie	397 Eddy	560 Buckeye	518 Alphanice	500 Allied S.W.	515 Domtar	497 Allied N.W.	498 Pr. Albert	418 Potlatch	510 Pontiac	414 Terrace Bay
277	–	–	–	–	–	175	–	–	–	–	–	–
390	–	–	–	–	–	34	–	–	–	–	–	–
154	–	–	–	–	–	10	–	–	–	–	–	–
378	–	–	–	–	–	245	–	–	–	–	–	–
354	–	–	–	–	–	264	–	–	–	–	–	–
349	–	–	–	–	–	145	–	–	–	–	–	–
319	–	–	–	–	–	112	–	9	–	–	–	–
2221	–	–	–	–	–	[illegible]	–	1	–	–	–	–
323	–	30	–	–	–	26	–	–	–	–	–	–
333	–	108	–	–	–	69	–	7	–	–	–	–
372	–	88	–	24	–	131	–	–	–	–	–	–
284	–	84	–	–	–	180	–	–	–	–	–	–
372	–	146	–	–	–	56	–	–	–	–	–	–
401	–	87	–	–	–	50	–	–	264	–	–	–
406	–	92	–	–	–	79	–	–	235	–	–	–
2491	–	633	–	24	–	591	–	7	499	–	–	–
325	–	32	48	–	–	160	–	35	30	–	–	–
306	–	112	–	–	–	126	–	–	27	–	–	–
346	–	156	–	–	–	–	–	–	21	–	–	–
344	–	–	36	–	–	–	–	–	72	–	–	–
402	–	–	150	–	–	–	–	–	132	–	–	–
444	–	–	324	–	–	–	–	–	102	–	–	–
491	–	–	336	–	–	–	–	–	100	–	–	–
2658	–	320	894	–	–	286	–	35	484	–	–	–
419	–	–	180	–	–	–	–	–	96	–	–	–
355	–	–	24	–	–	–	–	–	84	–	–	–
408	–	6	54	–	–	–	–	–	92	–	–	–
336	–	102	102	–	–	–	–	–	–	–	–	–
363	–	–	16	–	–	–	–	–	–	–	–	–
314	–	44	–	–	–	–	–	–	–	–	–	–
313	–	–	–	–	–	–	–	–	–	–	–	–
2508	–	152	376	–	–	–	–	–	272	–	–	–
273	–	–	–	–	–	–	–	–	–	–	–	–
278	–	108	–	–	–	93	–	–	–	–	–	–
244	–	84	–	–	–	69	–	–	–	–	–	–
202	–	84	–	–	–	80	–	–	–	–	–	–
227	–	24	–	–	–	62	–	–	48	–	–	–
244	–	–	–	–	–	50	–	–	84	–	–	–
318	–	300	–	–	–	354	–	–	132	–	–	–
11376	–	1407	1270	24	–	2216	–	51	1387	–	–	–
569986	–	825909	504190	13440	–	1108000	–	25347	690726	–	–	–

Mach. 7, 8 + 9
M; 11 D
June 1979

Pulp Used In Hydrapulpee

DATE	Superior 507	Kamloops 481	Simpson 397	NAHOLA 462	Marathon 487	Crestbrook 520	Gd. Prairie 587	Allied SW 500	West-Vaco 327	Pr. George 467	Total	Allied HW 497
5-28-79	–	–	–	–	–	–	–	106	–	–	352	3
29	140	–	–	–	–	–	–	–	–	–	228	
30	256	–	–	–	–	–	–	32	–	–	324	
31	144	–	–	–	–	–	–	140	–	–	336	
1	8	–	–	–	–	–	–	72	–	–	264	
2	–	–	–	–	–	–	–	102	–	–	300	
3	–	–	–	26	–	–	–	70	–	–	312	–
4	548	–	–	26 111	–	–	–	22	–	7	312	
5	81	–	–	47	–	–	–	33	–	13	252	
6	134	–	–	–	–	–	–	151	–	21	360	–
7	–	–	–	–	–	–	91	175	–	11	348	–
8	–	–	–	–	65	–	106	94	–	9	324	
9	–	–	–	–	83	60	–	–	–	23	336	
10	–	–	–	140	–	48	–	–	–	–	348	
11	215	40	–	288 36	148	108	197	453	–	84	372	
12	–	88	–	–	–	–	–	–	–	–	372	
13	–	89	–	–	–	–	–	–	–	6	312	
14	199	11	–	–	–	–	–	–	–	76	336	
15	196	–	–	–	–	–	–	–	–	108	348	
16	49	105	–	–	–	–	–	30	–	94	312	
17	–	165	–	–	–	–	–	126	–	17	348	
18	11	–	–	–	–	–	–	172	–	9	348	–
19	–	–	–	–	–	–	–	210	–	–	360	–
20	–	–	–	–	–	–	–	216	–	–	312	–
21	–	–	–	–	–	–	–	42	–	–	324	
22	–	–	–	84	–	–	–	90	–	–	324	
23	36	–	–	–	–	72	–	94	–	–	348	–
24	228 164	–	–	–	–	108	–	–	–	–	336	
25	108	–	–	54	–	36	–	61	–	7	372	
26	–	–	–	–	90	–	–	40	–	–	372	–
27	–	–	–	8	69 27	–	–	76	–	–	324	
28	–	–	–	–	8	–	–	108	–	–	324	
29	–	–	–	26	7	–	–	80	–	–	300	
30	–	–	–	22	–	–	–	92	–	–	300	–
	79	495	–	570	334	24	197	2741	–	44	10[illegible]	
	5005	3422	–	3630	1626	1054	1126	5145	–	199	[illegible]	

SH 065149

PBK - Pr Hlc ge

Total	497 Allied HW	477 Celgar	414 Terrace Bay 397 Dryden F.B.	489 Brunswick	397 Eddy	481 Dryden Semi Bl.	537 Southwest HW + Pane 475 Port Hudson	434 Fort Francis	512 Norah	462 Missoula	498 Pr Albert	507 Domtar
352	38	—	—	—	—	—	—	—	—	—	152	—
228	52	—	—	—	—	—	—	—	—	—	36	—
324	36	—	—	—	—	—	—	—	—	—	—	—
336	12	—	—	—	—	—	—	—	—	—	—	—
264	16	—	168	—	—	—	—	—	—	—	—	—
300	16	—	182	—	—	—	—	—	—	—	—	—
312	—	—	152	—	—	60	—	—	—	—	—	—
312	170 28	—	367 37	—	—	108	—	—	—	—	—	—
252	20		10	—	—	48	—	—	—	—	—	—
360	—	54		—	—	—	—	—	—	—	—	—
348	—		6	—	—	—	—	—	—	—	65	—
324	28	—		—	—	—	—	—	—	—	22	—
336	72	—		—	—	98	—	—	—	—	—	—
348	72	—	16	—	—	68	—	—	—	—	4	—
336	238	60	30	—	—	322	—	—	—	—	184	—
312	32	—		—	—		—	—	—	—		—
372	44	—	—	—	—	—	—	—	—	—	240	—
312	28	—	—	—	—	—	—	—	—	—	189	—
336	28	—	—	—	—	—	—	—	—	—	22	—
348	44	—	—	—	—	—	—	—	—	—	—	—
312	34	—	—	—	—	—	—	—	—	—	—	—
348	40	—	—	—	—	—	—	—	—	—	—	—
2340 348	250 —	—	105	—	—	—	—	—	—	—	62	—
360	—	—		—	—	—	—	—	—	—	150	—
312	—	—		96	—	—	—	—	—	—	—	—
324	32	—		72	—	178	—	—	—	—	—	—
324	10	—		12	—	112	—	—	—	—	8	—
348	—	—	—		—	137	8	—	—	—	—	—
336	—	—			—		—	—	—	—	—	—
2373	42	—	105	180	—	434	8	—	—	—	220	—
372	16	122		—	—	—	—	—	—	—	—	—
312	—	160		—	—	—	—	—	—	—	—	—
324	48	196		—	—	32	—	—	—	—	—	—
324	36			—	—	184	—	—	—	—	—	—
288	54	8		—	—	—	—	—	—	—	—	—
300	—	116		—	—	—	—	—	—	—	50	—
1785	122	606	687	180	—	934	176	—	—	—	20	—
1087	804	66									1299	—
52358	399588	317682	714 60	—	373974	94512	—	—	—	—	6145 32	—
			284418									

SH 0858 0858159

Mach 5+6
Mill C
June 1979

Chemicals ① Used In ② Beater ③

DATE	Alum #	Size #	CLAY CAL	ANSILEX	SCM	NALCO 680	TITANIUM	ZEALEX	Ti-Pure	Du-Pont	TOTAL	④ AX
5-28-79	2.56	8.83	48.00	44.49	43.00	1.25	—	—	54.64	—	202.77	—
29	3.85	27.88	20.00	17.50	47.50	1.76	—	—	—	—	118.49	—
30	3.15	4.97	18.00	9.50	20.50	.48	—	—	—	—	56.60	—
31	3.85	17.65	70.00	34.00	21.00	1.56	48.00	—	—	—	196.06	—
1	3.85	7.33	74.00	37.50	20.00	1.52	5.00	—	59.50	—	208.70	—
2	4.20	9.23	58.00	51.00	—	1.64	—	—	84.00	—	208.07	—
3	3.41	8.09	70.00	19.50	—	1.63	—	—	43.88	—	146.51	—
4	2.80	17.00	26.40	—	—	1.52	—	—	4.00	—	51.72	—
5	3.50	11.38	82.85	—	—	1.62	5.00	—	10.50	—	114.85	—
6	12.97	6.42	52.50	40.50	—	1.14	76.00	—	.50	—	194.03	4C
7	3.85	11.94	80.00	13.50	—	1.56	2.50	—	—	—	137.85	24[illegible]
8	3.50	19.11	27.00	—	—	1.78	11.75	—	—	—	63.14	—
9	3.85	21.30	22.00	—	—	1.88	11.00	—	—	—	60.03	—
10	3.50	19.50	20.00	—	—	1.72	10.00	—	—	—	54.72	—
11	3.85	7.32	65.50	54.00	—	1.36	11.00	—	7.00	—	96.03	—
12	3.85	8.20	120.00	17.00	—	1.56	35.00	—	21.50	—	207.11	—
13	4.55	6.70	117.00	25.00	—	1.48	—	—	58.00	—	212.73	—
14	4.20	8.51	55.00	53.25	—	1.42	30.00	—	76.50	—	228.88	—
15	3.50	19.75	—	25.00	—	1.68	—	—	50.00	—	99.93	—
16	3.15	20.75	6.00	18.00	—	1.76	—	—	34.50	—	84.16	—
17	3.50	21.00	20.00	10.00	—	1.88	—	—	12.50	—	68.88	—
18	3.85	10.87	52.00	33.50	—	1.48	—	—	11.00	—	157.70	45
19	6.40	7.23	67.50	41.25	42.00	1.50	—	—	31.50	—	177.32	—
20	3.50	7.73	110.00	40.00	70.00	1.60	—	—	—	—	232.85	—
21	3.50	7.40	104.00	38.00	—	1.52	66.00	—	—	—	220.42	—
22	2.98	7.34	50.00	27.00	—	1.46	61.25	—	—	—	18[illegible].03	—
23	3.15	8.18	78.00	34.50	60.00	1.56	—	—	—	—	185.39	—
24	3.50	8.63	69.00	22.25	34.50	1.38	—	—	—	—	139.26	—
25	5.40	6.50	52.00	17.50	206.50	1.04	26.00	—	—	—	108.44	—
26	4.15	8.13	50.00	29.00	—	1.20	60.50	—	—	—	152.98	—
27	2.45	8.88	42.00	35.75	—	1.12	82.00	—	—	—	172.20	—
28	2.45	13.44	34.88	24.00		1.40	—	—	—	—	136.79	61
29	2.70	9.33	42.88	26.50	25.60	1.08	—	—	—	—	151.51	40
30	2.45	9.76	38.00	30.50	4.50	1.04	—	—	—	—	162.75	76
	[illegible]	[illegible]	[illegible]	163.25	30.00	[illegible]	168.50	—	—	—	824.67	[illegible]
	131.32	316.30	1870.75	815.49	388.50	49.58	541.00	—	[illegible]	—	[illegible]896	[illegible]
			1.5									
			2806.12									

SA 068151

Total	(4) Ax	Alpha-size
20277	—	—
11849	—	—
5660	—	—
19606	—	—
20870	—	—
20807	—	—
14651	—	—
5172	—	—
11485	—	—
19403	400	—
13785	2450	—
6314	—	—
6003	—	—
5472	—	—
9603	2550	—
20711	—	—
21273	—	—
22888	—	—
9993	—	—
8416	—	—
6888	—	—
15770	4500	—
19738	—	—
23285	—	—
22042	—	—
18003	—	—
18539	—	—
13926	—	—
13003	4500	—
10844	—	—
15298	—	—
17220	—	—
13679	6150	—
15151	4000	—
16275	7650	—
18467	18300	—
00896	25650	—

SA 068152

Mach. 7, 8 + 9
Mill D
June 1979

Chemicals ① Used In Beater ②

DATE	Alum #	Size #	CLAY GAL	Ansilex	SCM	NALCO 680	AX	TI-PURE	CAMEL WITE	CALICUM CARBONATE	Total	③ Titan
5-28 79	33 60	17 25	110 80	47 00	41 00	5 76	—	—	—	—	325 91	70
29	26 15	15 00	56 40	55 00	105 50	3 30	—	—	—	—	261 35	—
30	29 53	15 67	110 90	28 62	54 75	3 99	—	—	—	—	243 46	—
31	31 00	19 10	104 35	67 50	109 65	3 84	—	—	—	—	335 62	—
1	25 50	14 45	93 60	29 50	72 50	3 03	—	—	—	—	238 58	—
2	26 88	17 55	78 08	39 63	73 13	3 70	—	—	—	—	238 97	—
3	26 30	19 30	135 10	56 50	106 00	3 69	—	—	—	—	346 89	—
4	24 00	20 70	63 00	55 50	130 00	3 39	—	—	—	—	296 59	—
5	25 90	19 90	48 00	41 50	99 00	2 82	—	—	—	—	237 12	—
6	25 35	20 47	53 00	72 00	141 00	2 64	—	—	—	—	314 96	—
7	25 35	16 43	73 50	76 00	169 25	2 74	—	—	—	—	363 27	—
8	27 50	20 53	62 00	90 00	166 50	2 97	—	—	—	—	369 50	—
9	27 00	18 65	78 00	34 00	97 50	2 88	—	—	—	—	260 03	—
10	30 20	20 50	86 50	36 50	94 50	3 04	—	—	—	—	271 29	—
11	27 95	15 15	78 20	30 50	84 50	2 67	—	—	—	—	232 91	—
12	23 15	17 60	104 10	33 50	65 50	2 79	—	—	—	—	246 64	—
13	29 78	19 50	96 60	46 25	89 00	2 78	—	—	—	—	283 91	—
14	29 70	16 05	81 60	44 50	98 50	2 73	—	—	—	—	273 08	—
15	28 80	18 60	72 40	54 00	117 00	2 88	—	—	—	—	293 68	—
16	26 70	16 05	89 60	39 00	84 50	2 67	—	—	—	—	258 52	—
17	33 30	19 80	115 20	41 50	109 00	3 42	—	—	—	—	322 22	—
18	34 50	20 55	113 60	51 50	135 00	3 43	—	—	—	—	358 60	
19	33 60	26 15	55 40	46 00	107 50	3 18	—	—	—	—	271 83	—
20	30 60	17 95	21 00	47 00	94 00	3 06	—	—	—	—	213 61	—
21	28 80	16 50	19 00	40 50	78 00	2 91	—	—	—	—	185 71	—
22	35 70	20 10	62 20	46 00	94 50	3 03	—	—	—	—	261 53	—
23	31 35	21 30	76 00	25 00	84 00	3 12	—	—	—	—	240 77	—
24	33 60	19 90	110 80	1 50	32 00	3 36	—	—	—	—	201 16	—
25	36 90	21 75	123 00	—	33 60	3 69	—	—	—	—	218 84	—
26	30 10	22 13	58 80	9 50	43 50	2 82	—	—	—	—	166 85	—
27	27 05	20 55	67 80	58 00	72 00	2 52	—	—	—	—	247 92	—
28	22 15	20 48	65 80	77 00	109 50	2 37	—	—	—	—	297 30	—
29	21 88	16 05	103 00	40 00	78 00	2 70	—	—	—	—	261 63	—
30	24 70	16 50	103 80	23 50	50 50	2 82	—	—	—	—	221 82	—
	[illegible]	117 46	522 20	[illegible]	387 00	[illegible]	—	—	—	—	1414 [illegible]	
	968 57	[illegible]	277 13	1454 50	312 028	10[illegible] 75	—	—	—	—	11[illegible]	
			1.5									
			415 670									

SA 068153

③

Total	Titanium	Zealex	Alpha-size
325 91	70 50	—	—
261 35	—	—	—
243 46	—	—	—
335 62	—	—	18
238 58	—	—	—
238 97	—	—	—
346 89	—	—	—
296 59	—	—	
237 12	—	—	—
314 96	—	—	—
363 27	—	—	—
369 50	—	—	—
260 03	200	—	—
271 29	—	—	—
232 91	200	—	—
246 64	—	—	—
283 91	—	—	—
273 08	—	—	—
293 68	—	—	—
258 52	—	—	—
322 22	—	—	—
358 60	—	—	—
271 83	—	—	—
213 61	—	—	—
185 71	—	—	—
261 53	—	—	—
240 77	—	—	—
201 16	—	—	—
218 84	—	—	—
166 85	—	—	—
247 92	—	—	—
297 30	—	—	—
261 63	—	—	—
221 82	—	—	—
1414 36	—	—	—
162 07	72 50	—	18

SA 068154

No R+D Trials
Jack Shockley 278

June 1979

DATE	LATEX 673 GAL	Defoamer D7-122	STEARATE DC-111 gal	Kelgin HV #	TSPP	CLAY gal HT WAX	Blade Coater Chemicals Ammonia gal.	Uvitex #	CAMIL WITE #	LATEX 6107 gal	PG-205 #	74-B Pencor
5-28-79	651	12	30	45	48	1875	18	102	–	–	–	–
29	651	12	30	45	48	1875	18	102	–	–	–	–
30	868	16	40	60	64	2500	24	136	–	–	–	–
31	651	12	30	45	48	1875	18	102	–	–	–	–
6-1-79	868	16	40	60	64	2500	24	34	–	–	–	–
2+3	868	16	40	60	68	2500	24	136	–	–	–	–
4	868	16	40	60	64	2500	24	136	–	–	–	–
5	434	8	20	30	32	1250	18	34	–	–	800	–
12	434	8	20	30	32	1250	12	68	–	–	–	–
13	651	121	30	45	48	1945	18	102	–	75	–	–
14+15	868	16	40	60	64	2500	24	136	–	–	–	–
16	434	8	20	30	32	1250	12	68	–	–	–	–
17	868	16	40	60	64	2500	24	136	–	–	–	–
18	434	8	20	30	32	1250	12	68	–	–	–	–
19	651	12	30	45	58	2813	34	102	100	–	–	–
25	1085	20	50	75	84	3435	35	170	50	–	–	–
26	651	12	30	45	48	2925	38	102	500	–	3100	–
28+27	434	8	20	15	32	1250	12	–	–	–	–	–
R+D Trial 29+30	1302	24	60	96	96	3750	36	204	–	–	–	–
	12671	341	[illegible]	136	1026	41743	425	[illegible]	[illegible]	75	[illegible]	–
	53181	✓	6197	✓	✓	417430	3090	✓	✓	328		
	✓		✓			✓	✓			✓		

R+D Trial 6-1-79 to 10-11
R+D Trial 10-23

SH

868155

[redacted]

P G-205 #	74-B Pencore	Staysize 112#	Clinsize 173B/A	Nopcocide 120 K gal	Calgon T #	Glycerine	Cellosize	Cellosolve #	Scriptest 720 gal	FC-807 gal	239 Atlas
800		1000									
		1800									
2100					5						
2160		28 cc			5						

620 gal LATEX	722 gal LATEX	D7-122 D2-122 US #	# Borax	LV PROTEIN	# SODIUM NITRATE	PREZ 707 gal.	H. T. CLAY DRY	MISSISSIPPI CLAY	Hyb. CLAY	gal. FORMULA 2036	# Evanol
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	900	—	—	—	—	—	—
—	—	—	—	—	6300	—	—	—	—	—	770
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
440	—	10	30	600	8100	15	—	—	—	—	—
147	—	4	10	200	—	—	—	—	—	—	—
440	176	8	31	600	3300	—	—	—	—	—	325
220	124	4	16	300	—	—	—	—	—	—	75
—	—	—	—	—	—	—	—	—	—	—	—
[illegible]	—	[illegible]	[illegible]	[illegible]	18600	15	—	—	—	—	1170
[illegible]					—	150					—

SA 068157

Ed Arnold Ext. 250

July 1979 Mill "C" Chemicals

INCL. ROTO D.. = DRY LBS.

DATE	ALUM GAL 3960#	CLAY tk.	SIZE GAL. x .25	CLINTON SIZE 673B LBS	PARACOL GAL.	STAZYME-J WAX BAGS x 100	STAYSIZE 112 LBS x 100	TITANIUM LBS.	ANSILEX LBS.	Defoamer Koch gal	CP-7 gal.	NALCO LBS
7-1 79	7.50	277.20	11.55	—	—	84.00	—	91.50	42.50	15	1.25	
2	4.50	277.20	10.72	—	—	72.00	—	79.50	30.00	15	1.75	
3	8.00	237.60	9.95	—	—	72.00	—	81.00	30.50	15	2.00	
5	10.00	356.40	10.99	—	—	145.00	—	60.00	24.00	15	3.00	
6	7.00	277.20	11.13	—	—	84.00	—	61.00	31.25	15	1.00	
7	8.00	277.20	12.94	—	—	72.00	—	73.00	42.50	15	1.50	
8	5.00	435.60	10.90	—	—	72.00	—	31.00	25.00	15	1.50	
9	12.50	237.60	15.70	—	—	48.00	—	21.50	12.50	15	1.25	
10	7.50	277.20	15.38	—	—	60.00	7.00	16.00	8.00	15	1.75	
11	12.25	198.00	23.94	—	—	24.00	28.00	17.00	8.50	15	2.25	
12	9.75	237.60	31.66	—	—	24.00	28.00	11.50	—	15	1.00	
13	10.00	356.40	21.70	—	—	60.00	7.00	16.50	—	15	1.75	
14	8.00	514.80	9.37	—	—	108.00	—	58.00	18.00	15	1.50	
15	10.00	356.40	9.39	—	—	96.00	—	77.50	25.00	15	1.50	
16	7.50	396.00	8.57	—	—	96.00	—	47.50	8.50	15	1.50	
17	8.50	356.40	7.90	—	—	72.00	—	38.50	16.75	15	1.00	
18	19.00	475.20	8.95	—	—	132.00	—	42.00	17.50	15	1.50	
19	4.50	475.20	6.93	—	—	120.00	—	51.00	25.50	15	2.00	
20	7.50	396.00	7.87	—	—	120.00	—	85.00	39.25	15	2.00	
21	9.50	277.20	7.62	—	—	89.00	—	69.00	33.25	15	2.00	
22	7.00	475.20	8.42	—	—	145.00	—	65.00	25.50	15	2.00	
23	9.00	237.60	27.46	—	—	62.00	36.00	43.00	21.00	15	2.00	
24	6.00	79.20	31.45	—	—	12.00	24.00	49.00	21.00	—	1.00	
25	11.00	79.20	27.98	13.00	—	24.00	5.00	37.00	21.00	15	2.00	
26	9.00	316.80	13.60	—	—	112.00	—	71.00	36.00	15	2.00	
27	7.00	316.80	11.08	—	—	96.00	—	92.00	46.00	15	1.00	
28	8.00	316.80	12.39	—	—	110.00	—	63.50	30.00	15	2.00	
29	9.00	277.20	20.79	24.00	—	60.00	—	67.00	30.00	15	2.00	
	242.50	791.20*	406.33	37.00	—	2271.00	135.00	[illegible]	[illegible]	[illegible]	[illegible]	
	4.96									[illegible]	[illegible]	
	120,280											

SA 068158

gal. CP-7	LBS. NALCO-680	LBS. PARAMEL	tk. ALUM-ON-TANK	gal. CLAY TANK	LBS Zolex	753 CLINSIZE	100 Lb Bags SODIUM NITRATE	100x LBS Douglas Starch	Bag SALT	Bag Stacote 120	MERSIZE	gal. ALPHO SIZE
125	116	–	3	2300	–	–	–	–	–	–	–	–
175	100	–	2	2600	–	–	–	–	–	–	–	–
200	104	–	3	1500	–	–	–	–	–	–	–	–
200	148	–	4	3400	–	–	–	–	–	–	–	–
100	110	–	3	2200	–	–	–	–	–	–	–	–
150	116	–	3	2900	–	–	–	–	–	–	–	–
150	116	–	2	3500	–	–	–	–	–	–	–	–
125	118	19060	4	1800	–	–	–	–	–	–	–	–
175	104	19000	3	2400	–	–	2100	–	–	–	–	–
225	162	24200	5	1900	–	–	8800	–	–	–	–	–
100	160	28940	4	2000	–	–	8800	–	–	–	–	–
175	168	19020	4	2900	–	–	2200	–	–	–	–	–
150	136	–	3	4000	–	–	–	–	–	–	–	–
138	138	–	4	3600	–	–	–	–	–	–	–	–
130	126	–	3	3300	–	–	–	–	–	–	–	–
100	112	–	3	2700	–	–	–	–	–	–	–	–
150	152	–	4	4700	–	–	–	–	–	–	–	–
200	136	–	2	4100	–	–	–	–	–	–	–	–
200	144	–	3	3900	–	–	–	–	–	–	–	–
200	96	–	4	2300	–	–	–	–	–	–	–	–
200	136	–	3	3900	–	–	–	–	–	–	–	–
200	184	25500	4	1600	–	–	–	–	–	–	–	–
100	153	29100	3	1300	–	–	–	–	–	–	–	–
200	160	35200	5	700	–	–	–	–	–	–	–	–
200	145	–	4	2700	–	–	–	–	–	–	–	–
100	120	–	3	2700	–	–	–	–	–	–	–	–
200	142	–	3	1500	–	–	–	–	–	–	–	–
200	160	12500	4	2600	–	–	8800	–	–	–	–	–
6000	3764	312520	95	75000	–	–	30700	–	–	–	–	–
.7		17002	x220	10.5								
			20,900 gal	787500								
			645									
			113,905 #									

SH 068159

Oskar Dikerts

July 1979 Mill "D" Chemicals 5400"

DATE	120 x tank size gal.	C-7 gal.	LBS J100# Bag	100# Bag Clinco 55	50# Bag Titanium	71-m gal. Nalco	Clay Counter	Sodium Aluminate	B-64 glue (Inches)
7-1	480	—	—	12800	220	1	— 3	—	3
2	480	—	—	14400	1900	1	— 2	—	4
3	840	—	—	12200	230	1	— 2	—	3
5	720	—	—	22400	200	1	— 3	—	3
6	720	—	—	12600	267	—	— 28	12	—
7	720	—	—	8800	379	—	— 3	1	—
8	960	—	—	18600	323	—	— 3	1	50
9	960	—	—	18000	354	1	— 6	2	4"
10	960	—	—	16000	344	—	— 5	1	57
11	960	—	—	9600	212	—	— 15	2	2"
12	1200	—	—	14400	257	1	— 6	1	61
13	420	—	—	16000	250	1	— 4	1	88 gal
14	540	—	—	17600	250	1	— 4	1	97 gal
15	540	—	—	12800	250	1	— 5	1	98"
16	540	—	—	11200	250	63	— 5	—	—
17	540	—	—	8000	250	63	— 5	—	98
18	540	—	—	12800	250	60	— 5	1	98
19	540	—	8000	9600	250	1	— 5	1	88
20	360	—	3200	4800	200	18	2	1	539
21	720	—	3200	11200	230	48	5	1	698
22	540	—	—	11200	153	48	2	1	49
23	540	—	—	11200	100	42	4	1	195
24	540	—	—	12800	250	30	3	1	196
25	540	—	—	11200	277	33	3	1	49
26	540	—	—	14400	307	—	4	1	98
27	360	—	—	8000	200	1	— 3	—	2"
28	360	—	—	4800	220	1	— 2	—	2"
29	360	—	—	8000	210	12	— 3	—	3"
	1752	—	14400	[illegible]	6773	431	140,[illegible]	32	[illegible]85
					x50		5400		
					34,650		756,000		

SA 068160

MILL-C

(gallons)

CLAY DATE	Roto-Dip #5	Roto-Dip #6	Usage Total
7-1 79	1404	3131	[illegible]
2	1332	2313	[illegible]
3	1490	1926	[illegible]
5	1712	2229	[illegible]
6	1590	2629	[illegible]
7	4301	2006	[illegible]
8	5103	2617	[illegible]
9	4871	1959	[illegible]
10	5786	1850	7636
11	5227	1293	[illegible]
12	6553	78	6631
13	6558	1519	8077
14	7192	2709	9901
15	6355	—	[illegible]
16	6285	1224	7509
17	3921	1277	5198
18	5840	2204	8044
19	5460	2538	7998
20	4000	2702	6702
21	2198	1463	[illegible]
22	4804	3780	8584
23	3559	1882	5441
24	2189	175	[illegible]
25	2388	540	2928
26	2370	1965	4335
27	3150	2224	5374
28	1644	2303	3947
29	no [illegible]		

15

234,480

SA 068161

Nancy Vogler Ext 202 or 205

July 1979

Mill "E" Chemicals

DATE	Soy Flour	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX # DOW 636	Drum LATEX DOW 636	TSPP	ULTRA BLUE	PAREZ RESIN	RED BXP #
7-9+10	-	-	1760	40000	208	-	7200	-	112	-	-	-
11+12	-	-	1870	42500	221	-	4200	-	119	20		-
13+14	-	-	1430	32500	169	15	7200	-	105	-	-	
16+17	-	-	1760	40000	208	-	9600	-	112	-		-
18+19	-	-	1990	45000	221	-	10200	-	119	-	-	-
20	-	-	440	12500	52	85	2400	-	68	-	-	-
23+24	-	-	880	25000	104	-	2724	-	56	20	-	
25+26	-	-	1760	45000	208	-	6900	-	112	-	-	-
27	-	-	440	12500	60	-	5968	-	-	-	-	-
			[illegible]	[illegible]	31	15	[illegible]	-	563	4.		
			✓	✓	✓	✓	65		✓	✓		✓
							✓					

SA 068162

PAREZ RESIN	RED BXP #	gal (Sod Nitrate) Ammonia SALT		Borax	gal. Nopco 178	# Formaly-dehyde	# Procote Protein	# LATEX DOW 620	Dm STANLEY DOW 620	Dylex LATEX	Dm SORNIN LATEX	Dow LATEX 636 (steel)
–	–	336	3500	240	118	400	4800	2300	–	–	–	
–	–	357	500	255	57	425	5100	5750	–	–	–	
–	–	273	–	175	53	325	3900	–	–	575	–	–
–	–	336	–	240	70	400	4800	–	–	–	–	
–	–	357	–	255	65	425	5100	–	–	–	–	–
–	–	81	–	60	20	100	1200	–	–	–	–	–
–	1	168	–	120	20	200	2400	–	–	–		
–	–	336	–	240	50	400	4800	2100	–	–	–	–
–	–	84	–	–	20	100	1200	–	–	–	–	–
	1	[illegible]	4010	[illegible]	[illegible]	[illegible]	[illegible]		–			
		125	✓	✓	[illegible]	✓	✓	✓		✓		
	✓	✓			✓							

411659

SA 068163

MACH. 5+6
Mill C

July 1979

DATE	Dryden Semi Bl 481	NAHOLA 462	MARATHON 487	Pulp Superior 507	Used Pr. George 467	IN Celgar 477	Hydropulper Crest-Brook 520	Bruns-wick 489	West-UACO 327	Kamloops 481	Total	Dryd. 7.B 397
7-1 79	–	66	–	–	–	93	–	–	–	–	261	–
2	–	60	–	–	–	–	–	–	–	–	[illegible]	–
3	–	54	–	–	36	–	–	–	–	–	125	–
5	–	16	–	–	114	–	–	–	–	–	214	–
6	–	28	–	–	96	6	–	–	–	–	263	–
7	16	58	–	–	–	87	–	–	–	–	253	–
8	48	56	–	–	–	84	–	–	–	–	260	–
9	–	12	–	130	–	18	–	–	–	–	256	–
10	–	–	–	111	–	50	82	–	–	–	243	–
11	–	–	–	–	–	–	208	–	–	–	343	
12	92	46	–	–	115	–	–	–	–	–	[illegible]	–
13	96	66	–	–	120	–	–	–	–	–	337	–
14	100	50	–	–	–	–	–	–	–	–	294	–
15	100	50	–	–	–	–	–	–	–	–	314	–
16	27	22	–	–	–	–	–	–	–	–	272	
17	54	92	–	–	–	–	27	–	–	–	251	
18	45	72	–	–	–	–	–	–	–	–	250	
19	81	80	–	–	–	–	–	–	–	–	318	
20	9	–	–	–	–	–	87	–	–	–	323	–
21	–	–	–	–	–	–	102	–	–	–	342	–
22	–	–	–	–	–	–	96	–	–	–	296	–
23	–	–	193	–	–	–	96	–	–	–	[illegible]	–
24	–	–	190	–	–	–	102	–	–	–	316	–
25	–	–	206	–	–	–	–	–	–	–	322	–
26	–	–	173	–	–	–	–	–	–	–	315	–
27	–	–	120	–	–	55	–	–	–	–	371	–
28	–	–	–	–	–	50	–	–	–	–	378	–
29	–	–	–	–	–	–	–	–	–	45	314	–
				241	4[illegible]1	443	5[illegible]			4[illegible]		
	3[illegible]1304	382536	429534	122187	224627	211311	416000			21,6[illegible]		11

SA 068164

MACH. 5+6
Mill C

July 1979

DATE	Dryden Semi Bl 481	NAHOLA 462	MARATHON 487	Pulp Superior 507	Used Pr. George 467	IN Celgar 477	Hydropulper Crest-Brook 520	Bruns-wick 489	West-UACO 327	KAMLOOPS 481	TOTAL	Dryd 7.B 397
7-1 79	–	66	–	–	–	93	–	–	–	–	261	–
2	–	60	–	–	–	–	–	–	–	–	240	–
3	–	54	–	–	36	–	–	–	–	–	195	–
5	–	16	–	–	114	–	–	–	–	–	214	–
6	–	28	–	–	96	6	–	–	–	–	263	–
7	16	58	–	–	–	87	–	–	–	–	253	–
8	48	56	–	–	–	84	–	–	–	–	260	–
9	–	12	–	130	–	18	–	–	–	–	206	–
10	–	–	–	111	–	50	82	–	–	–	243	–
11	–	–	–	–	–	–	208	–	–	–	342	
12	92	46	–	–	115	–	–	–	–	–	303	–
13	96	66	–	–	120	–	–	–	–	–	331	–
14	100	50	–	–	–	–	–	–	–	–	294	–
15	100	50	–	–	–	–	–	–	–	–	314	–
16	37	32	–	–	–	–	–	–	–	–	270	
17	54	92	–	–	–	–	27	–	–	–	251	
18	45	72	–	–	–	–	–	–	–	–	250	
19	81	80	–	–	–	–	–	–	–	–	318	
20	9	–	–	–	–	–	87	–	–	–	323	–
21	–	–	–	–	–	–	102	–	–	–	342	–
22	–	–	–	–	–	–	96	–	–	–	296	–
23	–	–	193	–	–	–	96	–	–	–	346	
24	–	–	190	–	–	–	102	–	–	–	316	–
25	–	–	206	–	–	–	–	–	–	–	322	
26	–	–	173	–	–	–	–	–	–	–	315	–
27	–	–	120	–	–	55	–	–	–	–	371	–
28	–	–	–	–	–	50	–	–	–	–	378	–
29	–	–	–	–	–	–	–	–	–	45	314	–
				241	4 1	443	5 0			4		
	321308	382536	429534	122187	224627	211311	416000			21,6[illegible]		11

SA 068164

537 Jacket W'd

Total	397 Druden F.B.	587 Gd. Prairie	397 Eddy	560 Buckeye	518 Alphanize	500 Allied S.W.	515 Domtar	497 Allied H.W.	498 Pr. Albert	418 Potlatch	310 Pontiac	414 Terrace Bay
261	–	–	–	–	–	–	6	–	96	–	–	–
240	–	–	–	–	–	–	90	–	90	–	–	–
195	–	–	–	–	–	–	81	–	24	–	–	–
314	–	–	–	–	–	184	–	–	–	–	–	–
263	–	–	–	–	–	58	75	–	–	–	–	–
253	–	84	–	–	–	8	–	–	–	–	–	–
260	–	48	–	–	–	24	–	–	–	–	–	–
256	–	96	–	–	–	–	–	–	–	–	–	–
243	–	–	–	–	–	–	–	–	–	–	–	–
343	27	–	90	–	–	–	–	–	–	–	18	–
363	–	–	110	–	–	–	–	–	–	–	–	–
337	–	–	–	–	–	55	–	–	–	–	–	–
294	–	–	–	–	–	144	–	–	–	–	–	–
314	–	–	–	–	–	164	–	–	–	–	–	–
272	71	–	–	–	–	153	–	–	–	–	–	–
251	54	–	–	–	–	24	–	–	–	–	–	–
250	45	–	–	–	–	88	–	–	–	–	–	–
318	81	–	–	–	–	76	–	–	–	–	–	–
323	–	–	–	–	–	224	–	–	–	–	–	–
243	–	–	–	–	–	140	–	–	–	–	–	–
296	–	–	–	–	–	200	–	–	–	–	–	–
346	–	–	–	–	–	45	12	–	–	–	–	–
316	–	–	–	–	–	–	24	–	–	–	–	–
322	–	–	–	–	–	–	102	–	–	–	–	–
315	–	–	84	–	–	22	36	–	–	–	–	–
271	–	–	96	–	–	–	–	–	–	–	–	–
278	–	–	108	–	–	120	–	–	–	–	–	–
314	–	85	96	–	–	88	–	–	–	–	–	–
[illegible]	275	313	554	–	–	1216	426	–	21			
	110366	183731	221248			908000	219390		104580		[illegible]	
	✓	✓	✓			✓	✓		✓		✓	

91

SA 068165

MACH 7, 8 & 9
Mill D
July 1979

Pulp Used In Hydropulper

DATE	507 Superior	481 Kamloops	397 Simpson	462 Nahola	487 Marathon	520 Crestbrook	Gd. 587 Prairie	Allied SW 500	West-vaco 327	Pr. 467 George	Total	497 Allied HW
7-1-79	–	–	–	28	60	–	–	24	–	–	312	
2	–	–	–	6	22	–	–	36	–	13	288	–
3	–	–	–	–	–	–	–	32	–	5	192	–
5	–	–	–	–	–	–	–	–	–	–	316	–
6	–	–	–	–	–	–	48	72	–	–	192	–
7	–	–	–	–	–	–	–	120	–	–	276	–
8	–	–	–	–	–	–	–	120	–	44	228	–
9	44	–	–	–	–	–	138	32	–	–	278	–
10	–	–	–	–	–	–	80	128	–	–	320	–
11	–	–	–	–	–	–	–	188	–	–	276	–
12	–	–	–	–	–	–	–	180	–	–	252	–
13	–	–	–	–	–	–	36	228	–	–	312	–
14	–	–	–	–	–	–	–	80	–	–	240	–
15	–	–	–	–	–	–	72	66	–	–	276	
16	–	–	–	–	–	–	84	60	–	–	288	
17	–	–	–	–	–	–	24	187	–	–	336	
18	–	–	–	–	–	–	–	172	–	–	336	
19	–	–	–	–	–	–	–	240	–	–	336	–
20	12	–	–	–	–	–	–	210	–	–	264	–
21	106	–	–	–	–	–	–	146	–	–	336	–
22	168	–	–	72	–	–	–	–	–	–	264	–
23	216	–	–	24	–	–	–	–	–	–	300	
24	24	84	–	–	–	–	60	–	–	–	276	
25	–	24	–	–	–	–	–	60	–	–	264	
26	–	12	–	–	–	–	–	30	–	–	180	–
27	–	–	–	–	–	–	–	36	–	–	288	–
28	–	–	–	–	–	–	–	110	–	–	312	–
29	180	–	–	–	–	–	–	20	–	–	276	–
	7[illegible]	[illegible]	–	1[illegible]	[illegible]	–	[illegible]	[illegible]77	–		[illegible]14	
	380,250	57,720		60,060	39,934		318,154	1,288,500		28,954		[illegible]
	✓	✓		✓	✓	✓	✓	✓		✓		✓

SA 068166

Total	497 Allied HW	477 Celgae	397 Dryden F.B.	489 Brunswick	397 Eddy	481 Dryden Semi Bl.	414 Terrace Bay	Panama	512 Noral	462 Missoula	Pr 498 ALBERT	507 Domtar
312	16	48	—	—	—	—	—	24	—	—	—	—
288	—	—	—	—	—	—	—	—	—	—	—	—
192	—	—	—	—	27	—	—	—	—	—	—	—
216	—	—	—	—	—	—	—	—	—	—	—	
192	—	—	72	—	—	—	—	—	—	—	—	—
276	—	—	48	—	—	—	—	—	—	—	108	—
228	—	—	—	—	64	—	—	—	—	—	—	—
278	—	—	—	—	—	—	—	—	—	—	64	—
320	—	—	—	—	—	—	—	—	—	—	112	—
276	—	—	—	—	—	—	—	—	—	—	88	—
252	—	—	—	—	—	—	—	—	—	—	72	—
312	—	—	—	—	40	—	—	—	—	—	8	—
240	—	—	—	—	160	—	—	—	—	—	—	—
276	4	—	—	—	134	—	—	—	—	—	—	—
288	36	—	—	—	108	—	—	—	—	—	—	—
336	89	—	36	—	—	—	—	—	—	—	—	—
336	8	48	156	—	—	—	—	—	—	—	—	—
336	—	—	156	—	—	—	—	—	—	—	—	—
264	—	—	96	—	—	—	—	—	—	—	—	—
336	—	—	42	—	—	—	—	—	—	—	—	—
264	—	—	—	—	84	—	—	—	—	—	—	—
300	28	32	—	—	24	—	—	—	—	—	—	—
276	16	8	—	—	72	—	—	—	—	—	12	—
264	12	—	—	—	96	—	—	—	—	—	72	—
180	—	12	—	—	—	—	—	—	—	—	126	—
288	—	64	—	—	—	—	—	—	—	—	158	—
312	—	—	—	—	—	—	—	—	—	—	202	—
276	—	36	—	—	—	—	—	—	—	—	40	—
7714	[illegible]	200	450	—	[illegible]	—	—	[illegible]	—	—	[illegible]	—
	103873	95400	178650		321,173			12240			[illegible]	

SA 068167

Mach 5+6
Mill C
July 1979

Chemicals ① Used In ② Beater ③ ④

DATE	Alum #	Size #	Clay gal	Ansilex	SCM	NALCO 680	Titanium	Zealex	Ti-Pure	Du-Pont	Total	Ax
7-1-79	280	1088	4200	3450	—	116	—	—	—	—	18284	915
2	245	938	3600	3000	2700	100	—	—	—	—	15833	525
3	245	976	3800	3050	2850	104	—	—	—	—	16275	525
5	280	808	5800	2400	—	148	—	—	—	—	15536	610
6	176	903	4500	3125	—	110	—	—	—	—	14714	610
7	315	975	4000	4250	—	116	—	—	—	—	[illegible]956	730
8	350	973	5700	4600	—	116	1200	—	—	—	14837	190
9	315	1320	2050	1250	—	116	1800	—	—	—	7201	35
10	280	1090	1200	800	—	104	—	—	—	—	5074	160
11	298	2181	1275	850	—	162	1700	—	—	—	6466	—
12	315	2558	1800	—	—	160	1150	—	—	—	5983	—
13	840	1908	4800	—	—	168	1650	—	—	—	9366	—
14	350	720	6800	1800	—	136	4300	—	—	—	15606	150
15	350	738	5950	2500	—	140	6250	—	—	—	17429	15
16	336	728	6616	850	—	134	2300	—	—	—	13402	243
17	280	613	5800	1750	—	116	2500	—	—	—	12559	150
18	315	732	7600	675	—	152	1350	—	—	—	13674	285
19	315	663	6800	2550	—	136	5100	—	—	—	15564	—
20	385	670	6600	4175	—	148	—	—	—	—	21078	910
21	315	535	3000	3325	—	96	6900	—	—	—	14171	—
22	315	663	5000	2550	—	136	6500	—	—	—	15164	—
23	315	2173	1400	2100	5000	176	—	—	—	—	[illegible]164	—
24	245	2312	—	2100	—	153	4900	—	—	—	9710	—
25	245	2319	—	2100	—	154	4400	—	—	—	9218	—
26	280	1132	5700	3500	6950	154	—	—	—	—	17716	—
27	280	785	4400	4600	9200	120	—	—	—	—	19385	—
28	245	849	5700	3000	6350	142	—	—	—	—	16286	—
29	280	1680	6200	—	6900	160	—	—	—	—	15220	—
	1890	[illegible]	[illegible]	[illegible]			[illegible]					
	87[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					

✓ 15 ✓

180437

SA 068168

(4)

Total	Ax	Alpha-Size
18284	9150	—
15833	5250	—
16275	5250	—
15536	6100	—
14914	6100	—
16956	7300	—
14839	1900	—
7201	350	—
5074	1600	—
6466	—	—
5983	—	—
9366	—	—
15606	1500	—
17429	1500	—
[illegible]	4950	—
13402	2438	—
12557	1500	—
13674	2850	—
15564	—	—
21078	9100	—
14171	—	—
15164	—	—
[illegible]	5833	—
[illegible]	—	—
9710	—	—
9218	—	—
17716	—	—
19385	—	—
16286	—	—
15220	—	—
[illegible]	—	—
[illegible]072	[illegible]	—

SA 068169

Mach 7,8 + 9
Mill D

July 1979

Chemicals ① Used In Beater ②

DATE	Alum. #	Size #	CLAY gal	Ansilex	SCM	Nalco 680	Ax	Ti Pure	Camel Wite	Calicum Carbonate	Total	③ Titani
7-1-79	2537	2385	9830	1725	3950	305	–	–	–	–	20785	–
2	2630	2180	8220	4075	7275	299	700	–	–	–	25379	–
3	2663	2125	7350	6350	9725	257	3763	–	–	–	32233	–
5	3060	2330	10770	5800	9900	315	2900	500	–	–	25575	–
6	2190	1820	4170	5900	–	237	–	12700	–	–	27017	–
7	2600	1995	1400	6975	2500	264	50	15800	–	–	31584	–
8	3060	2340	3670	7000	8550	306	300	10450	–	–	35676	–
9	3615	2532	7830	6300	2000	365	6350	7500	–	–	36492	–
10	2925	2200	8750	8300	6400	288	10000	400	–	–	39263	–
11	2870	2535	8000	4700	2650	288	–	7950	–	–	28993	–
12	2940	2718	4700	6250	2500	294	–	10100	–	–	27500	–
13	3015	2076	10700	6725	–	314	–	13400	–	–	36230	–
14	2670	1710	8650	3750	3100	381	1650	3600	–	–	26661	11
15	2320	1868	7025	4300	2225	324	3250	5950	–	–	27262	–
16	2200	1868	6750	4700	11400	228	–	–	–	–	27146	–
17	2310	1380	7900	1300	1200	306	–	3250	–	4050	21696	–
18	3120	2243	8700	850	–	312	–	4650	–	1400	21275	–
19	3600	2224	9905	1975	6500	361	–	2150	–	–	26715	–
20	2405	1985	9240	4850	9650	255	–	–	–	–	28385	–
21	2060	1740	5600	5500	6000	216	–	3000	–	–	24116	–
22	3210	2380	7600	4325	6900	321	–	1300	–	–	26036	–
23	2730	2115	6800	3800	4900	273	–	–	–	–	20641	–
24	2490	1865	1720	6250	1050	249	–	11000	–	–	14631	–
25	2065	1575	2880	7750	12150	210	850	350	–	–	27730	–
26	2160	1560	4200	6550	12650	201	750	1250	–	–	27321	
27	2340	1515	4110	5350	11900	219	–	1200	–	–	26634	–
28	2750	1363	8620	3400	6700	258	–	–	–	–	23091	–
29	2505	1610	5040	4950	8200	240	1850	–	–	–	24395	–
	7[illegible]	[illegible]	[illegible]	700	75	[illegible]	[illegible]	112[illegible]		[illegible]		
			15									
			285,195									

SA 068170

Total	③ Titanium	Zealex	X Alpha-Size
20785	—	—	53
25379	—	—	—
32233	—	—	—
35575	—	—	—
27017	—	—	—
31584	—	—	—
35676	—	—	—
36492	—	—	53
39263	—	—	—
28993	—	—	—
29502	—	—	—
36230	—	—	—
26661	1150	—	—
27268	—	—	—
24955	1150	—	
27146	—	—	—
21696	—	—	—
21275	—	—	—
26715	—	—	—
28385	—	—	—
24116	—	—	—
26036	—	—	—
20641	—	—	23
24631	—	—	7
27830	—	—	—
29321	—	—	—
26634	—	—	—
23091	—	—	—
24395	—	—	—
[illegible]	—	—	36
4564	115		83

SA 068171

Jack Shockley Ext 278
No R+D Trials

July 1979 x389 # x 119 Blade Coater x10 Chemicals x727

DATE	LATEX 673 gal	Defoamer D7-122	Stearate DC-111 gal	Kelgin HV #	TSPP #	CLAY gal HT WAX	gal Ammonia	Uvitex	CAMIL WITE	LATEX 6107 gal	PG-208	74-B Pencor
7-1	–	–	–	–	–	–	–	–	–	–	–	–
2	651	12	30	45	48	1875	18	68	–	–	–	–
3	868	16	40	60	64	2500	24	136	–	–	–	–
6	1085	20	50	75	80	3125	30	170	–	–	–	–
7+8	1736	32	80	120	128	5000	48	272	–	–	–	–
9	651	12	30	45	48	1825	18	102	–	–	–	–
10	1235	32	62	75	80	3380	45	170	900	–	1500	–
11	1335	44	80	90	96	4175	61	204	1500	–	2500	–
12+13	1519	40	82	105	112	4630	54	238	900	–	1500	–
14	434	8	20	30	32	1250	12	68	–	–	–	–
16	825	40	40	125	85	2350	30	–	–	–	–	–
17	495	60	24	75	96	1410	36	–	–	–	–	–
18	165	8	8	25	35	470	7	–	9100	–	200	8
19	495	24	24	75	51	1410	18	–	4550	–	100	4
20	900	32	50	45	48	2300	43	68	1500	–	2500	–
21	484	12	24	30	32	1335	17	68	300	–	500	–
23	217	4	10	15	16	625	6	–	–	–	–	–
24	495	12	24	75	51	1410	18	–	–	–	–	–
25	165	8	8	25	17	470	6	–	–	–	–	–
26	495	12	24	75	51	1410	18	–	–	–	–	–
27	217	4	10	15	16	625	6	–	–	–	–	–
28	651	12	30	45	48	1875	18	102	–	–	–	–
29	434	8	20	30	32	1250	12	68	–	–	–	–
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1734	[illegible]	–		
	60417		[illegible]			447[illegible]	[illegible]162			–		
	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	

SA 068172

# PG-208	74-B Pencore	Staysize 112#	Clinsize 173B	NOPCOCIDE 120	# CALGON T	Glycerine	NOPCOSANT Cellosize	Cello-Lose	Cellosize ~~CMC-7L~~	Scriptset 720 gal	gal 7C-807	239 Atlas
1500				12	9		3					
2500				20	15		5					
1500							3					
		1800		900							135	45
200	800			64		18	10		50			54
100	400			32		9	5					
2500				20	15		5					
500				4	3							
		1800			42							
	1000	1500		05	43	2	1		2			1
				105.00								
✓	✓	✓		✓	✓	✓	✓		✓		✓	✓

564623

620 LATEX gal	722 LATEX gal	D7-122 DZ-122NS #	BORAX #	LV PROTEIN	SODIUM NITRATE #	PREZ 707 gal x10	H.T CLAY DRY	MISSIPPI CLAY	Hyp CLAY	FORMULA 2036 gal	Evanol #	DATE
–	–	–	–	–	–	–	–	–	–	–	–	7/7
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	8
–	–	–	–	–	–	–	–	–	–	–	–	8
–	–	–	–	–	–	–	–	–	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	10
–	–	–	–	–	–	–	–	–	–	–	–	11
–	–	–	–	–	–	–	–	–	–	–	–	12
–	–	–	–	–	–	–	–	–	–	–	–	13
–	–	–	–	–	–	–	–	–	–	–	–	14
–	–	–	–	–	–	–	–	–	–	–	–	16
–	–	–	–	–	–	–	–	–	–	–	–	18
–	–	–	–	–	–	–	–	–	–	–	–	19
–	–	–	–	–	–	–	–	–	–	–	–	19
–	–	–	–	–	–	–	–	–	–	–	–	20
–	–	–	–	–	–	–	–	–	–	–	–	21
–	–	–	–	–	–	–	–	–	–	–	–	23
–	–	–	–	–	–	–	–	–	–	–	–	24
–	–	–	–	–	–	–	–	–	–	–	–	25
												26
												27
												28
												29

BLADE COATER BROKE

July 1979

vano 1#	DATE	Uncoated	Coated Broke	TOTAL	R+D Trial Uncoated	Coated Broke	TOTAL
	7-1 79	1000	2450	3450			
	2	900	2300	3200			
	3	900	2300	3200			
	6	400	1770	2170			
	7	700	2700	3400			
	7	260	1160	1420			
	8	550	2350	2900			
	8	900	3300	4200			
	9	1700	3050	4750			
	9	330	1290	1620			
	10	120	1590	1710			
	11	360	1320	1680			
	12	350	930	1280			
	13	700	1510	2210			
	14	220	270	490			
	16	940	3170	4110			
	18	500	200	700			
	19	900	3100	4000			
	19	800	2400	3200			
	20	-	480	480			
	21	620	2048	2668			
	23	3045	3382	6427			
	24	3177	2541	5718			
	25	3260	9830	13090			
	26	3150	7450	10600			
	27	1100	1200	2300			
	28	2350	6300	8650			
	29	-	-	-			
		21232	70391	196			

Ed Arnold Ext. 250

Aug. 1979

Mill "C" Chemicals

DATE	ALUM. (gal.)	CLAY (3960# tk.)	SIZE (GAL x .25)	CLINTON (6708 x100)	PARACOL (LBS)	STAZYTE (GAL. WAY)	~~STAYSIZE~~ (BAGS x 100)	TITANIUM (LBS.)	Ansilex (LBS)	Defoamer (Koch gal)	CP-7 (gal)	NALCO-68 (LBS)
7-30 79	650	7920	2775	18	–	–	–	5525	2275	15	150	16
31	700	3960	3288	30	–	36	–	5100	2000	15	50	10
8-1	700	7920	3397	18	–	24	–	7650	2700	15	150	18
2	650	11880	3215	–	–	36	30	2775	1425	15	100	17
3	1100	47520	885	–	–	132	–	1750	1100	15	150	180
4	900	59400	1030	–	–	132	–	1900	1000	15	100	16
5	1100	59400	940	–	–	96	–	5500	2200	15	100	14
6	1700	55440	1030	–	–	84	–	5850	2100	15	100	15
7	1250	35640	718	–	–	84	–	6750	2300	15	150	[illegible]
8	1550	43560	1002	–	–	72	–	8800	2100	15	150	12
9	1150	47520	842	–	–	84	–	9325	3300	15	200	10
10	500	35640	816	–	–	96	–	11450	4500	15	200	9
11	650	39600	714	–	–	72	–	9950	4875	15	175	9
12	450	23760	884	–	–	84	–	14100	5400	15	175	9
13	700	19800	1535	–	–	24	–	7100	2600	15	150	8
14	650	31680	2155	–	–	48	–	5100	1800	15	150	12
15	850	19800	2590	12	12	36	–	4250	1500	15	100	12
16	700	3960	2689	12	12	–	–	5950	2100	15	125	13
17	900	27720	905	27	–	53	(Staysize)	3450	1350	15	125	1[illegible]
18	500	47520	803	–	–	92	40	5900	2225	15	150	12
19	750	43560	611	–	–	168	–	7100	3200	15	100	12
20	650	51480	862	–	–	144	–	9100	3300	15	150	1[illegible]
21	700	43560	470	–	–	120	–	7000	2500	15	150	1[illegible]
22	500	55440	867	–	–	84	24	5750	2600	15	100	1[illegible]
23	500	55440	953	48	–	96	(Staysize)	7200	2350	15	200	14
24	500	19800	2350	–	–	84	32	8125	2850	15	50	1[illegible]
25	500	11880	2805	–	–	24	(Staysize) 27	3350	1500	15	150	1[illegible]
26	700	51480	1342	–	–	156	–	4600	2050	15	150	15
	[illegible]	[illegible]#	424	10500	[illegible]	[illegible]100		[illegible]		[illegible]		
						Clinoize				3398		
						Staysize						

SA 068176

[redacted]

gal. CP-7	LBS NALCO-680	LBS PARAMEL	AIUM-ON-TANK	GAL CLAY TANK	LBS Zolex	753 CLINSIZE	X100 Bags Sodium Nitrate	100 X/BS Douglas Starch	Bag SALT	Bag Stacote 120	Mersize	GAL Alpha SIZE
150	162	21940	3	600	–	–	66	–	–	–	–	–
50	160	27540	3	400	–	–	110	–	–	–	–	
150	188	27120	3	700	–	–	66	–	–	–	–	–
100	176	29280	3	1000	–	–	110	–	–	–	–	–
150	180	–	5	4000	–	–	–	–	–	–	–	–
100	168	–	4	5200	–	–	–	–	–	–	–	–
100	144	–	5	4300	–	–	–	–	–	–	–	–
100	150	–	8	4900	–	–	–	–	–	–	–	–
150	96	–	6	3100	–	–	–	–	–	–	–	–
150	124	–	6	3600	–	–	–	–	–	–	–	–
200	106	–	5	3400	–	–	–	–	–	–	–	–
200	92	–	2	3100	–	–	–	–	–	–	–	–
175	94	–	3	2200	–	–	–	–	–	–	–	–
175	96	–	2	1300	–	–	–	–	–	–	–	–
150	88	17000	3	1100	–	–	–	–	–	–	–	–
150	128	37040	3	1800	–	–	–	–	–	–	–	–
100	124	33540	4	1700	–	–	88	–	–	–	–	–
125	134	20940	3	300	–	–	46	–	–	–	–	–
125	114	1840	4	2400	–	–	–	–	–	–	–	–
150	126	–	2	3400	–	–	–	–	–	–	–	–
100	128	–	3	3400	–	–	–	–	–	–	–	–
150	132	–	3	3700	–	–	–	–	–	–	–	–
150	104	–	3	3700	–	–	–	–	–	–	–	–
100	120	–	2	3200	–	–	–	–	–	–	–	–
200	144	–	2	3800	–	–	–	–	–	–	–	–
50	150	1700	2	1300	–	–	138	–	–	–	–	–
150	168	30000	2	900	–	–	100	–	–	–	–	–
150	156	8080	3	4200	–	–	–	–	–	–	–	–
[illegible]	[illegible]	[illegible]	97	[illegible]	–	–	721	–	–	–	–	
[illegible]		[illegible]		105			[illegible]					
				763,350								

Oskar Diberto
Ext. 277

Aug 1979 Mill "D" Chemicals 5400#

DATE	120 x tk SIZE gal	C-7 gal	LBS J 100# Bag	100# Bag CUNCO 55	50# Bag Titanium	71-M gal NALCO	CLAY COUNTER	SODIUM ALUM.	Inches B-64 glue
7-30-79	480	—	—	12800	10000	6	3	—	3
31	480	—	—	14400	11500	6	2	—	2
8-1-79	720	—	—	11200	10000	—	2	—	3
2	900	—	—	—	12000	1	2	—	3
3	720	—	—	11000	8550	—	21	8	61
4	240	—	—	11200	6250	—	4	1	4
5	960	5	—	9600	11500	—	4	2	63
6	360	—	—	16000	6700	—	11	—	7"
7	—	—	—	14400	9900	—	7	2	3
8	720	—	—	12000	14650	1	7	—	5"
9	600	—	—	12800	11000	—	6	2	20
10	480	—	—	11200	12500	51	6	—	196 gal
11	540	—	—	11200	12500	—	4	—	98 gal
12	540	—	—	9600	12500	39	4	—	98 gal
13	360	—	—	7600	12500	—	5	—	293
14	540	—	—	8000	12500	93	5	—	98 gal
15	720	—	—	8000	12500	23	6	—	244
16	400	—	—	16000	12500	33	2	—	147
17	720	—	—	14400	14000	—	2	1	196
18	540	—	—	16000	10000	18	7	1	98
19	540	—	—	12800	8000	12	7	2	98
20	420	—	—	14400	13150	—	2	1	147
21	360	—	—	8000	9650	—	5	1	195
22	360	—	—	6400	9550	9	3	1	98
23	480	—	—	9600	5150	—	7	1	147
24	240	—	—	16000	11500	—	3	—	2"
25	480	—	—	12800	10000	—	2	—	4"
26	300	—	—	11200	10250	—	2	—	2
	14200	5	—	318600	301800	292	141	23	—

5400
761,400#

MILL C

CLAY Roto-Dip USAGE (gallons)

DATE	#5	#6	TOTAL
7-30	616	880	1496
31	1127	20	1147
8-1	2339	—	2339
2	3649	291	3940
3	4076	3351	7427
4	4822	5614	10436
5	4923	5305	10228
6	4977	7424	12401
7	3168	2325	5493
8	5283	2834	8117
9	2718	4847	7565
10	2405	3912	6317
11	3022	4376	7398
12	4059	2133	6192
13	2244	1328	3572
14	2947	4148	7095
15	1242	2655	3897
16	2318	52	2370
17	2102	1783	3885
18	4470	3687	8157
19	4646	2515	7161
20	3572	3783	7355
21	3702	3397	7099
22	4645	3635	8280
23	5214	4502	9716
24	2875	1538	4413
25	3240	160	3400
26	4423	3194	7617
	[illegible]	[illegible]	[illegible]
			1.5
			261,770

Harry Vogler Ext. 202 or 205

Aug 1979 Mill "E" Chemicals 48

DATE	Soy Flour	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX #. DOW 636	Drum LATEX DOW 636	TSPP	ULTRA BLUE	PAREZ RESIN	Red Bx P
7-30-31	–	–	1760	45000	208	–	9200	–	128	–	–	–
8-1 & 2	–	–	2090	50000	2600	–	10925	–	133	–	–	–
3	–	–	880	22500	104	–	4600	–	56	–	–	–
6+7	–	–	550	27500	130	–	5750	–	80	–	–	–
8+9	–	–	1100	40000	130	–	5750	–	70	–	–	–
10	–	–	880	40000	104	100	–	–	146	–		–
13+14	–	–	330	7500	39	–	–	–	21	–	–	–
15+16	–	–	1210	27500	143	–	6325	–	77	–	–	–
17+18	–	–	1430	40000	169	–	7475	–	184	–	–	–
20+21	did not use any wash cote											
22-23+24	–	–	1500	40500	2055	–	15634	–	305	–	–	–
	–	–	11730	40500	5652	100	65659	–	1200	–	–	–
			✓	✓	✓	✓	31516 ✓		✓			

PAREZ RESIN	Red Bx P #	gal Ammonia	(SOD VIT) SALT	Borax	gal Nopco 178	# Formaly-dehyde	# Procote Protein	# LATEX Dow 620	Dm. STANLEY Dow 620	Dow 620 ~~Dyley~~ LATEX	Dm SORVIN LATEX	Dow LATEX 636 (Steel
–	–	336	–	240	20	400	4800	–	–	–	–	–
–	–	399	~~7000~~	285	20	475	6600	–	–	–	–	–
–	–	168	–	120	25	200	2400	–	–	–	–	–
–	–	210	–	150	25	250	3550	–	–	–	–	–
–	–	210	–	150	25	250	3000	–	–	–	–	–
–	–	168	–	120	25	200	2400	–	–	4600	–	
–	–	63	–	45	3	75	900	–	–	1725	–	
–	–	231	–	165	13	275	3300	–	–	–	–	–
–	–	273	–	195	15	325	3900	–	–	–	–	–
–	–	225	–	–	–	885	10200	–	–	–	–	–
–	–	2283	~~[illegible]~~	1470	171	[illegible]	[illegible]	–	–	[illegible]	–	–
		47	✓	✓	[illegible]	✓	✓			✓		
		✓	–		✓							

467827

SA 069181

Mach 5+6
Mill C

Aug 1979 481 462 487 Pulp 507 Used 467 In 477 Hydropulper 489 481 297

DATE	Dryden Semi Bl.	NAHOLA	MARATHON	Superior	Pr. George	Celgar	Crestbrook	Brunswick	West Vaco	Kamloops	Total	Dryden 7:8
7-30 79	–	–	–	–	–	–	–	–	–	200	330	–
31	–	–	–	–	–	–	–	–	–	–	387	–
8-1 79	–	–	–	–	–	–	–	–	–	–	409	–
2	–	–	–	–	–	35	110	–	–	–	397	–
3	–	–	–	–	–	–	8	–	–	–	422	–
4	–	–	–	–	–	–	–	–	–	–	392	–
5	–	–	–	–	–	–	–	–	–	–	366	–
6	–	–	–	–	–	–	–	–	–	–	313	–
7	–	–	–	–	–	–	–	–	–	–	267	–
8	–	–	–	–	–	–	–	–	–	–	267	–
9	–	–	–	–	–	–	48	–	–	–	277	–
10	–	–	–	–	–	12	51	–	–	–	258	–
11	–	–	–	–	–	116	–	–	–	–	252	–
12	–	–	–	84	–	104	–	–	–	–	240	–
13	–	–	–	84	–	133	–	–	–	–	339	–
14	–	–	60	30	–	149	–	–	–	30	281	–
15	–	–	230	–	–	–	–	–	–	96	326	–
16	–	–	200	–	–	–	–	–	–	96	306	–
17	–	–	–	–	–	–	–	–	–	96	304	–
18	–	214	–	–	–	–	–	–	–	69	325	–
19	–	257	–	–	–	–	–	–	–	72	346	–
20	18	162	–	–	–	69	–	–	–	–	335	–
21	–	201	–	–	–	39	–	–	–	–	306	–
22	24	62	–	–	–	21	–	–	–	–	264	–
23	–	–	–	–	–	75	42	–	–	–	345	–
24	–	–	–	–	–	–	187	–	–	–	329	–
25	25	–	–	–	42	–	10	–	–	–	452	–
26	–	–	–	80	–	–	–	–	–	–	412	–
	67	776	490	278	42	753	454	–	–	659	11[illegible]7	1
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓

58 858182

Total	397 Dryden F.B.	587 Gd. Prairie	397 Eddy	560 Buckeye	518 Alphamier	500 Allied S.W.	515 Domtar	497 Allied H.W.	498 Ft. Albert	418 Potlatch	~~510~~ ~~Pontiac~~	414 Terrace Bay
330	–	–	130	–	–	–	–	–	–	–	–	–
387	–	6	376	–	–	5	–	–	–	–	–	–
409	–	102	270	–	–	37	–	–	–	–	–	–
397	–	–	90	–	–	32	–	–	130	–	–	–
422	–	–	–	–	–	284	–	–	130	–	–	–
392	–	–	–	–	–	272	–	–	120	–		–
366	–	–	–	–	–	261	–	–	105	–	–	–
313	–	18	–	–	–	215	–	–	80	–	–	–
267	–	90	–	–	–	177	–	–	–	–	–	–
267	–	102	–	–	–	165	–	–	–	–	–	–
277	–	96	–	–	–	133	–	–	–	–	–	–
258	–	111	–	–	–	84	–	–	–	–	–	–
252	–	78	–	–	–	58	–	–	–	–	–	–
240	–	–	–	–	–	52	–	–	–	–	–	–
229	–	–	–	–	–	12	–	–	–	–	–	–
281	–	–	–	–	–	12	–	–	–	–	–	–
326	–	–	–	–	–	–	–	–	–	–	–	–
306	10	–	–	–	–	–	–	–	–	–	–	–
304	–	–	–	–	–	199	–	9	–	–	–	–
325	–	–	–	–	–	30	–	12	–	–	–	–
346	–	–	–	–	–	–	–	17	–	–	–	–
335	–	–	–	–	–	82	–	4	–	–	–	–
306	18	–	–	–	–	12	36	–	–	–	–	–
264	–	–	–	–	–	157	–	–	–	–	–	–
345	24	–	48	–	–	112	–	44	–	–	–	–
329	114	–	–	–	–	–	–	28	–	–	–	–
452	–	–	240	–	–	–	–	33	–	–	102	–
412	–	–	175	–	–	–	–	25	–	–	132	–
1127	166	603	1329			2291	36	173	515	–	[illegible]	–
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

SB 068183

Mach 7, 8 + 9
Mill D

Pulp Used In Hydropulper

Aug. 1979

DATE	Superior 507	Kamloops 481	Simpson 397	NAHOLA 462	MARATHON 487	Crestbrook 520	Sd. Prairie 687	Allied SW 500	West UACO 327	Pr. George 467	TOTAL	Allied HW 497
7-30 79	28	124	–	–	36	–	–	6	–	–	264	
31	–	20	–	–	42	–	–	42	–	–	312	
8-1	–	–	–	–	–	–	–	94	–	–	324	
2	–	154	–	–	–	–	–	34	–	–	312	
3	–	198	–	–	–	–	–	90	–	–	324	–
4	–	148	–	–	32	–	–	84	–	–	300	–
5	–	–	–	–	164	–	–	88	–	–	300	–
6	–	–	–	–	–	–	–	144	–	–	300	–
7	–	–	–	–	–	–	–	120	–	–	300	–
8	32	–	–	–	–	–	–	96	–	–	312	
9	120	–	–	–	–	–	–	48	–	–	288	–
10	–	–	–	–	–	–	–	132	–	–	336	–
11	–	–	–	–	–	–	–	120	–	–	324	–
12	–	–	–	–	–	–	–	84	–	–	288	–
13	–	–	–	–	–	–	–	–	–	–	252	–
14	–	–	–	–	–	–	–	60	–	–	300	–
15	–	–	–	–	–	–	–	220	–	–	324	–
16	–	–	–	–	–	–	–	156	–	–	348	–
17	–	–	–	–	–	–	–	178	–	–	336	
18	–	–	–	–	64	–	–	200	–	–	312	
19	–	–	–	–	80	–	–	246	–	–	348	
20	–	–	–	–	32	–	–	148	–	–	372	
21	–	24	–	–	–	–	–	184	–	–	384	
22	–	16	–	–	–	–	–	96	–	–	252	
23	–	8	–	–	–	–	92	20	–	–	324	
24	–	–	–	20	–	–	–	–	–	–	324	
25	–	8	–	56	–	–	–	82	–	–	396	
26	76	120	–	–	–	–	–	–	–	–	408	
	256	820	–	76	450	–	92	2772	–	–	7164	

[redacted]

South west

Total	497 Allied HW	477 Celgar	397 Dryden F.B.	489 Brunswick	397 Eddy	481 Dryden Semi Bl.	414 Terrace Bay	x 537 Panama	512 Noral	462 Missoula	478 Pr. Albert	5 Sou 507 We Domtar
264	42	28	–	–	–	–	–	–	–	–	–	–
312	120	4	–	–	84	–	–	–	–	–	–	–
324	62	–	–	–	168	–	–	–	–	–	–	–
312	12	20	–	–	76	–	–	16	–	–	–	–
324	–	36	–	–	–	–	–	–	–	–	–	–
300	–	36	–	–	–	–	–	–	–	–	–	–
300	–	28	–	–	–	–	–	20	–	–	–	–
300	–	16	–	–	–	–	–	–	–	–	140	–
300	–	36	–	–	–	–	–	–	–	–	144	–
312	8	80	–	–	–	–	–	–	–	–	96	–
288	–	120	–	–	–	–	–	–	–	–	–	–
336	–	60	–	–	–	–	–	42	–	–	102	–
324	–	–	–	–	–	–	–	102	–	–	102	–
288	–	–	–	–	–	6	–	102	–	–	96	–
252	–	–	–	–	–	28	–	176	–	–	48	–
300	–	–	–	–	–	8	–	232	–	–	–	–
324	–	–	–	–	–	–	–	104	–	–	–	–
348	–	–	–	–	–	–	–	192	–	–	–	–
336	10	–	–	–	–	–	–	148	–	–	–	–
312	16	–	–	–	–	–	–	32	–	–	–	–
348	22	–	–	–	–	–	–	–	–	–	–	–
372	120	–	–	–	–	–	–	–	–	–	72	–
384	128	–	–	–	–	–	–	–	–	–	48	–
252	108	–	–	–	–	–	–	–	–	–	32	–
324	36	12	–	–	–	–	–	6	–	–	150	–
324	106	36	–	–	–	–	–	–	–	–	162	–
396	114	52	–	–	–	–	–	4	–	–	80	–
408	78	94	–	–	–	–	–	–	–	–	40	–
764	932	658	–	–	328	42	–	1176	–	–	1312	–
	✓	✓	✓	✓	✓	✓		✓			✓	✓

Mach 5+6
Mill C
Aug 1979

Chemicals ① Used In ② Beater

DATE	Alum #	SIZE #	CLAY gal	ANSILEX	SCM	NALCO 680	TiTANIUM	Zealex	③ Ti-Pure	Du-Pont	TOTAL	④ Ax
7-30 79	228	2451	–	2275	5525	162	–	–	–	–	10641	–
31	210	2425	–	2000	3400	160	1700	–	–	–	9895	–
8-1	315	2825	200	2700	–	188	7650	–	–	–	13878	–
2	281	2557	2600	1425	425	176	2350	–	–	–	9814	–
3	385	913	9000	1100	1650	180	100	–	–	–	13328	–
4	350	885	8400	1000	1500	168	–	–	–	–	12303	–
5	315	781	7200	2200	2000	144	3500	–	–	–	16148	–
6	298	799	7500	2100	1275	84	4575	–	–	–	16637	–
7	280	655	3200	2300	1950	96	4800	–	–	–	13281	–
8	945	753	4600	2100	8800	120	–	–	–	–	17318	–
9	928	606	4100	3300	9325	106	–	–	–	–	18365	–
10	315	648	3400	4650	–	96	11800	–	–	–	20909	–
11	210	1210	3500	3875	–	94	9950	–	–	–	18839	–
12	210	615	3600	5400	–	96	14100	–	–	–	24021	–
13	210	1220	800	2600	3150	88	7100	–	–	–	12018	–
14	210	2275	–	1800	–	128	–	–	–	–	9513	51[illegible]
15	210	2113	–	1500	–	124	–	–	–	–	8197	42[illegible]
16	245	2338	–	2100	5950	134	–	–	–	–	10767	–
17	263	597	4650	1350	2550	114	900	–	–	–	10424	–
18	368	552	5775	1650	2350	126	3650	–	–	–	14471	–
19	350	495	5900	3200	9100	128	–	–	–	–	19173	–
20	350	578	6100	3300	9400	132	–	–	–	–	19860	–
21	350	505	5100	2900	7900	112	–	–	–	–	16867	–
22	300	653	5500	2600	1450	120	4300	–	–	–	14923	–
23	330	788	7250	2350	–	144	7200	–	–	–	18062	–
24	293	1776	2150	2850	5875	150	2250	–	–	–	15344	–
25	350	2306	1200	1500	–	168	3350	–	–	–	8874	–
26	315	1099	6400	2050	3650	156	2150	–	–	–	15820	–
	1414	25412	10125	21175	34675	3694	91425	–	–	–	409676	[illegible]

(4)

Total	Ax	Alpha-size
10641	–	–
9895	–	–
13878	–	–
9814	–	–
13328	–	–
12303	–	–
16140	–	–
16631	–	–
13281	–	–
17318	–	–
18365	–	–
20909	–	–
18839	–	–
24021	–	–
12018	–	–
9513	5100	–
8197	4250	–
10767	–	–
10424	–	–
14471	–	–
19173	–	–
19860	9330	–
16867	–	–
14923	–	–
18062	–	–
15344	–	–
8874	–	–
15820	–	–
9750		
+09676	-1350	–

MACH 7, 8 + 9
M:11 D
Aug 1979

Chemicals ① Used In Beater ②

DATE	Alum #	SIZE #	CLAY gal	ANSILEX	SCM	NALCO 680	AX	TiPure	CAMWITE	Calicum Carbonate	TOTAL	③ Titanium
7-30 79	2310	1938	5380	5200	9550	231	–	–	–	–	24609	–
31	2910	625	6350	3500	6600	291	–	–	–	–	20300	–
8-1	2665	734	6280	2850	5700	279	500	750	–	–	19868	–
2	2935	2672	5420	6200	8950	267	–	250	–	–	26694	–
3	2880	1958	7720	6050	7600	282	900	550	–	–	27940	–
4	2640	1680	6400	4350	100	264	11400	–	–	–	26834	–
5	2805	1685	8320	4250	8550	278	2900	–	–	–	28786	–
6	2760	1700	6345	3950	4950	276	2900	3250	–	–	27137	–
7	2910	1950	11320	4150	8850	291	–	1500	–	–	30971	–
8	2580	1995	10350	5950	12400	258	1750	300	–	–	35583	–
9	2775	1898	8880	5275	11550	278	–	–	–	–	30656	–
10	2610	1995	5480	5475	11550	261	–	–	–	–	27371	–
11	2640	1965	5700	8350	5950	264	–	12400	–	–	37269	–
12	2520	1905	4500	7700	7650	252	–	7700	–	–	32227	–
13	1950	1530	9100	3700	6300	195	–	13050	–	–	24525	–
14	2550	1935	4150	4950	700	255	–	11350	–	–	25890	–
15	3295	2491	8000	4150	8150	321	–	–	–	–	28107	170
16	3340	2033	9250	5500	15800	318	–	–	–	–	36941	70
17	3348	1843	8415	7638	13913	316	–	–	–	–	35473	–
18	3010	1845	7880	3850	7500	285	2200	–	–	–	26570	–
19	3165	1995	8600	3050	7150	300	2800	–	–	–	27460	40
20	3080	2135	7650	3150	12450	291	–	–	–	–	28756	–
21	2930	1645	6600	1600	11450	279	–	–	–	–	24504	–
22	2160	1275	3650	1450	5400	222	–	3900	–	–	18057	–
23	2825	2235	8350	900	4600	300	–	600	–	–	19810	–
24	3095	2100	7510	4650	9600	327	–	–	–	–	27282	–
25	3130	1930	6200	3525	7625	320	–	–	–	–	22730	–
26	3180	1735	9598	2900	6800	318	–	–	–	–	24523	–
	7897	5142.7	193390	135[illegible]	51988	7819	25350	[illegible]	–	–	76[illegible]11	

068188

[redacted]

③

Total	Titanium	Zealex	Alpha-Size
24609	–	–	–
20300	–	–	24
19868	–	–	110
26694	–	–	–
27940	–	–	–
26834	–	–	–
28788	–	–	–
27137	–	–	–
30971	–	–	–
35583	–	–	–
30656	–	–	–
27371	–	–	–
37269	–	–	–
32227	–	–	–
24525	–	–	–
25890	–	–	–
28107	1700	–	–
36941	700	–	–
35473	–	–	–
26570	–	–	–
27460	400	–	–
28756	2800	–	–
24504	–	–	–
18057	2800	–	–
19810	–	–	–
27282	–	–	–
22730	–	–	–
24523			
66569	2800		134

Jack Shockley Ext 278
No R+D Trials
Aug 1979 x3.89 x8.09 x10- x7.27 x4.7

Blade Coater Chemicals

DATE	LATEX 673 gal	# Defoamer D7-122	Stearate DC-111 gal	Kelgin HV #	TSPP #	CLAY gal HT WAX	gal Ammonia	Uvitex	# Camil WITE	LATEX 6107 gal	# PG-208	74-B Pencore
7-31	217	4	10	15	16	625	6	34	–	–	1000	–
30	434	8	20	30	32	1250	12	68	–	–	–	–
8-1	434	8	20	30	32	1250	12	68	–	–	1000	–
2	217	4	10	15	16	1675	26	34	500	–	1800	–
3	R+D Trial		–	–	–							–
6	R+D Trial									–	–	–
7	651	12	30	45	48	1875	18	102	–	–	–	–
8	434	8	20	30	32	1250	12	68	–	–	–	–
9	651	12	30	45	48	1875	18	102	–	–	–	–
10-11+12	825	20	40	125	85	2350	30	–	–	–	–	–
13	330	8	16	50	34	940	12	–	–	–	–	–
14	495	12	32	75	51	1410	18	–	–	–	–	–
15	680	26	44	50	34	1535	48	–	2100	–	3500	–
16	330	8	16	50	34	940	12	–	–	–	–	–
17	330	8	16	50	34	940	12	–	–	–	–	–
18	547	12	26	65	50	1565	18	34	–	–	–	–
20	434	8	20	30	32	1250	12	68	–	–	–	–
21	434	8	20	30	32	1250	12	68	–	–	–	–
22	434	8	20	30	32	1250	12	68	–	–	–	–
23	217	4	10	15	26	1563	22	34	100	–	–	–
24	R+D Trial											
25	R+D Trial											
	8[illegible]4	178	400	7[illegible]0	[illegible]	24793	312	748	[illegible]70	–	[illegible]	–
	31486	✓	[illegible]	✓		[illegible]	[illegible]	✓	✓		✓	
	✓		✓		✓	✓	✓					

50 068190

# PG-208	74-B Pencore	Staysize 112 #	Clinsize 173B	NOPCOCIDE 120	# CALGON T	Glycerine	gal NOPCOSANT K	Cello-- lose	CMC-7L	Scriptset 720 gal	gal 7C-807	239 Atlas
1000	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
1000	–	–	–	–	–	–	–	–	–	–	–	–
1800	–	–	–	–	–	–	5	–	–	–	–	–
	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
3500	–	–	–	14	21	–	7	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	200	–	–	–	–	–	–	–	–	–	–
–	–	1400	–	–	–	–	–	–	–	–	–	–
				–								
7300	–	1600	–	14	21	–	12	–	–	–	–	–
✓		✓		✓	✓		✓					

620 LATEX 9AL	722 LATEX 9AL	D7-122NS #	BORAX #	LV PROTEIN	SODIUM NITRATE #	PREZ 707 9AL x10	H.T. CLAY DRY	MISSIPPI CLAY	Hyb CLAY	FORMULA 2036 9AL	Evanol #	B1 Date
-	-	-	-	-	3600	-	-	-	-	-	-	7-30
-	-	-	-	-	-	-	-	-	-	-	-	31
-	-	-	-	-	3600	-	-	-	-	-	-	8-1
440	176	16	31	600	900	-	-	-	-	-	325	2
									-	-	-	3
-	-	-	-	-	-	-	-	-	-	-	-	4
-	-	-	-	-	-	-	-	-	-	-	-	5
-	-	-	-	-	-	-	-	-	-	-	-	6
-	-	-	-	-	-	-	-	-	-	-	-	7
-	-	-	-	-	-	-	-	-	-	-	-	8
-	-	-	-	-	-	-	-	-	-	-	-	9
-	-	-	-	-	-	-	-	-	-	-	-	10
-	-	-	-	-	-	-	-	-	-	-	-	11
-	-	-	-	-	-	-	-	-	-	-	-	12
-	-	-	-	-	-	-	-	-	-	-	-	13
-	-	-	-	-	-	-	-	-	-	-	-	14
-	-	-	-	-	-	-	-	-	-	-	-	15
-	-	-	-	-	-	-	-	-	-	-	-	16
-	-	-	-	-	900	-	-	-	-	-	125	17
440	-	10	30	600	7000	-	-	-	-	-	875	18
												20
												21
880	17[illegible]	[illegible]	61	[illegible]	[illegible]	-	-	-	-	-	[illegible]	22
												23
												24
												25
												26

SA 068192

Blade Coater Broke Aug. 1979

# Evanol	Date	Uncoated	Coated Broke	Total	R+D Trial Uncoated	R+D Trial Coated	R+D Trial Total
	7-30-79	670	5611	6281			
	31	950	2750	3700			
	8-1-79	-	6170	6170			
325	2	9000	7286	16286			
	3	2965	7020	9985			
	4				1510	2219	3729
	5				1150	1650	2800
	6				1050	14600	15650
	7	3350	9700	13050			
	8	4770	5940	10710			
	9	3700	6882	10582			
	10	7570	12500	20070			
	11	1050	4500	5550			
	12	1810	2360	4170			
	13	900	2970	3870			
	14	2200	2750	4950			
	15	1050	5100	6150			
	16	1050	3350	4400			
125	17	1700	2950	4650			
875	18	950	1700	2650			
	20	1150	1600	2750			
	21	1375	2300	3675			
1325	22	900	2800	3700			
	23	950	2500	3450			
	24	730	1400	2130			
	25	1200	3000	4200			
	26				1000	5600	6600
		17701	103129	153127	4710	2419	23771
	R+D	4710	24067	28777			
		54700	127208	181908			

058193

Ed Arnold Ext 250

Sept 1979

Mill "C" Chemicals

DATE	ALUM.	CLAY	SIZE	CLINTON	CLINSIZE	J	112	Titanium	Ansilex	Defoamer	CP-7 gal	NALCO
		Incl Roto-Dip				x100	x100			x8.09	x8.42	680
		gal. 3960	tk. gal x .25	675B	lbs. 753							
8-27-79	550	47520	937	–	–	15600	2000	6500	3850	15	100	15
28	700	35640	910	–	–	12000	1200	7125	4175	15	125	15
29	650	43560	860	–	–	13200	–	8000	4500	15	25	14
30	600	35640	710	–	–	14400	–	7775	4425	15	150	13
31	900	39600	713	–	–	13200	–	7050	3250	15	150	13
9-1	800	47520	857	–	–	13900	–	6450	1500	15	200	13
2	1050	43560	971	–	–	14400	–	5100	2000	15	150	14
3	800	43560	812	–	–	12000	–	2050	600	15	150	17
4	900	35640	1574	–	–	4800	–	425	–	15	150	10
5	850	23760	1938	–	–	7200	–	2750	1650	15	200	13
6	1100	47520	1148	–	–	9600	–	2250	1350	15	100	13
7	1100	51480	884	–	–	14400	–	4700	2550	15	200	14
8	1000	35640	818	–	–	10800	–	7000	3550	15	200	14
9	950	51480	874	–	–	12000	–	5250	1400	15	200	16
10	900	39600	761	1000	–	11100	1000	7400	3700	15	100	1[illegible]
11	1600	43560	665	–	–	9800	1000	6000	3000	15	200	12
12	900	51480	778	–	–	12000	–	5100	3025	15	200	14
13	1000	59400	853	–	–	18000	–	8250	2875	15	300	14
14	1200	39600	755	–	–	9400	1000	5200	2325	15	200	14
15	1000	55440	892	–	–	13200	–	1500	1000	15	200	1[illegible]
16	900	47520	763	–	–	12000	–	3350	1000	15	200	1[illegible]
17	850	43560	705	–	–	9600	–	1750	700	15	250	1[illegible]
18	800	23760	1697	–	–	6000	3000	2950	1000	15	150	14
19	1150	27720	2565	–	–	3600	–	2700	1350	15	100	15
20	1300	23760	2545	–	–	6000	–	3400	1050	15	100	1[illegible]
21	1150	35640	1350	–	–	12000	–	5925	1825	15	200	1[illegible]
22	500	35640	700	–	–	13200	–	10475	3900	15	200	1[illegible]
23	650	27720	715	–	–	13200	–	10475	4475	15	200	1[illegible]
24	750	27720	613	–	–	8400	–	6700	3450	15	250	1[illegible]
25	400	27720	740	–	–	10800	–	8850	4650	15	200	1[illegible]
26	700	23760	873	–	–	12800	–	11700	6075	15	150	1[illegible]
27	600	11880	837	–	–	9600	–	8900	3450	15	200	1[illegible]
28	400	23760	873	–	–	7200	–	10925	5650	15	150	9
29	700	23760	1083	–	–	9600	–	7975	3475	15	200	1[illegible]
30	600	27720	900	–	–	13200	–	5200	1600	15	200	1[illegible]
	301[illegible]	13[illegible]3340	35[illegible]61	1000	–	[illegible]	9200	207150	[illegible]	[illegible]	[illegible]	1[illegible]

x 8 42		x 08		Gal.	x100
CP-7 gal	680 NALCO	Paramel	Alum-on tank	CLAY tank	Sodium Nitrate
100	156	-	4	3800	-
125	153	-	3	3300	-
25	140	-	3	3100	-
150	138	-	3	3500	-
150	132	-	4	3100	-
200	136	-	4	3700	-
150	140	-	5	4200	-
150	171	-	4	3500	-
150	106	22000	4	2700	-
200	136	36020	4	700	-
100	132	9420	5	5400	-
200	148	-	5	4700	-
200	142	-	4	2900	-
200	160	-	4	-	-
100	148	-	4	3200	-
200	120	-	6	3400	-
200	140	-	4	4100	-
300	140	-	6	4400	-
200	140	-	4	4000	-
200	160	-	5	5000	-
200	136	-	4	4500	-
250	116	-	4	3800	-
150	140	27500	4	2000	11000
100	136	49100	5	2100	-
100	124	36920	5	2600	-
200	124	13260	5	3300	-
200	126	-	3	3000	-
200	122	-	3	2200	-
250	92	-	3	3000	-
200	124	-	3	2200	-
150	138	-	3	1600	-
200	116	-	3	1200	-
150	94	-	3	2300	-
200	126	-	3	2100	-
200	128	-	3	2300	-
050	[illegible]	194230	136	106800	11000

Oskar Dikerts

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Sept. 1979

Mill "D" Chemicals

DATE	GLUE	SIZE tk. 120 x tk.	C-7 9AL	J	Clinco 55 x100	Titanium x100	71-M NALCO x50	CLAY COUNTER x5400	Sodium ALUMINATE
8-27 79	3	300	–	–	4800	10000	–	– 3	–
28	2	300	–	–	12800	9500	–	– 3	–
29	2	480	–	–	14400	9000	–	– 3	–
30	2	240	–	–	11200	9500	–	– 3	–
31	2	240	–	–	9600	10500	–	– 2	–
9-1	2	840	–	–	22400	13250	–	– 1	–
2	22	720	–	200	17600	11000	–	– 30	1
3	–	480	–	–	14400	10100	–	– 6	1
4								5	
5	26	720	–	–	17600	12700	–	– 5	–
6	27	480	–	–	12800	12200	–	– 5	1
7	107	240	–	–	11200	12500	–	– 3	–
8	48	480	–	–	15400	12500	–	– 2	–
9	480	240	–	–	14400	12500	–	– 2	–
10	–	540	–	–	16000	12500	–	– 2	–
11	2	360	–	–	12800	10500	–	– 15	–
12	2	540	–	–	11200	10500	–	– 2	–
13	2	360	–	–	16000	10500	–	– 3	–
14	–	540	–	–	19200	8700	–	18 ✓	1
15	240	740	–	–	14400	8200	–	4 ✓	1
16	–	540	–	–	14400	12000	–	8 ✓	1
17	150	360	–	–	19200	16200	–	5 ✓	1
18	98	540	–	–	16000	11100	–	2 ✓	–
19	98	540	–	–	14400	10500	–	8 ✓	1
20	147	720	–	–	12800	13950	–	3 ✓	1
21								} 6	
22									
23	3	540	–	–	12800	10000	–	– 3	–
24	2	540	–	4800	9600	10500	–	– 2	–
25	2	540	–	–	9600	20000	–	– 2	–
26	2	540	–	–	19200	9500	–	– 2	–
27	2	540	–	–	8000	11000	–	– 1	–
28	3	840	–	–	6400	10150	–	– 6	–
29	3	480	–	–	9600	15050	–	– 3	2
30	6	960	–	–	4800	8900	–	– 7	–
	1487	10500	–	5000	92000	365000	–	175 ~~48~~	11
					✓			5400	
								945,000	

SA 068196

MILL C

CLAY Roto-Dip Usage (gallons

Date	#5	#6	Total
8-27-79	3255	2996	6251
28	1902	2696	4598
29	2385	3388	5773
30	2984	3024	6008
31	1950	3674	5624
9-1	2830	4189	7019
2	5244	4876	10120
3	5630	4025	9655
4	9120	2516	11636
5	931	3875	4806
6	1134	3868	5002
7	2364	4698	7062
8	4294	1605	5899
9	4218	4131	8349
10	4103	3012	7115
11	4830	3084	7914
12	5040	4546	9586
13	5154	4487	9641
14	6080	2138	8218
15	4286	4468	8754
16	5085	3737	8822
17	2730	3380	6110
18	4104	1653	5757
19	4142	3310	7452
20	2567	4353	6920
21	3026	3728	6754
22	5194	2231	7425
23	6577	1202	7779
24	6951	485	7436
25	4288	1368	5656
26	5201	1110	6311
27	2904	1467	4371
28	2020	1563	3583
29	2534	1990	4524
30	3512	3226	6738
	138569	106099	244668

Harry Vogler Ext. 202 or 205

Sept. 1979 Mill "E" Chemicals x.48

DATE	SOY Flour	H.T. CLAY	CASEIN	H.T. CLAY TK.	CAMIL WITE	CAUSTIC SODA	LATEX DOW 620	LATEX DOW 636	TSPP	ULTRAMARINE BLUE	PAREZ RESIN	RED BxP
8-27+28	–	–	1540	35000	182	–	8050	–	98	–	–	–
29+30	–	–	1980	45000	234	–	10350	–	126	–	–	–
31	–	–	880	20000	104	–	4600	–	56	–	–	–
9-4+5	–	–	1210	27500	143	–	6325	–	77	–	–	–
6+7	–	–	1100	25000	130	–	5750	–	150	–	–	–
10+11	–	–	990	22500	117	–	5175	–	63	–	–	–
12-13+14	–	–	1650	35000	195	–	8625	–	105	–	–	–
17-18+19	–	–	1540	35000	173	–	6800	–	100	–	–	–
20+21	–	–	1100	25000	130	100	5750	–	150	–	–	–
24-25+26	–	–	800	40000	208	–	9600	–	112	–	–	–
27+28	–	–	400	20000	104	15	4800	–	136	–	–	–
	–	–	13190	330000	1720	115	75825	–	1173	–	–	–
			✓	✓	✓	✓	36396 ✓		✓			✓

[redacted]

PAREZ RESIN	RED # BxP	AMMONIA x7.27	SALT	BORAX	NOPCO 178 x7.73	# FORMALD-EHYDE	# PRO COTE PROTEIN	# LATEX DOW 620	Staley Sta Cote 620	Dylex LATEX	SARNIA LATEX	NOPCO 178
—	—	294	—	210	350	350	4200	—	—	—	—	—
—	—	378	—	270	486	450	5400	—	—	—	—	—
—	—	168	—	120	208	200	2400	—	—	—	—	—
—	—	231	—	165	286	275	3300	—	—	—	—	—
—	—	121	—	150	250	250	3000	—	—	—	—	—
—	—	189	—	135	234	225	2700	—	—	—	—	—
—	—	315	—	225	390	375	4500	—	—	—	—	—
—	—	280	—	210	500	210	4200	1150	—	—	—	78
—	1	210	—	150	260	250	3000	—	—	—	—	—
—	—	336	—	240	400	400	5600	—	—	—	—	—
—	—	168	—	120	200	200	2800	—	—	—	—	—
—	1	2690	—	1975	3564	3185	41100	1150	—	—	—	7[illegible]
	✓	19556		✓	27550	✓	✓	✓				✓
		✓			✓							
					+78							
					27628							

477209

068199

Mach. 5+6
Mill C

Sept. 1979 481 462 487 Pulp Used In Hydropulper 489 327 481 473 ~~397~~

DATE	Dryden Semi Bl.	NAHOLA	Marathon	507 Pr. Superior	467 George	477 Celgar	520 Crest-Brook	Bruns-wick	West-vaco	Kamloops	Total	Dryden F.B.
8-27	–	–	–	195	48	40	–	–	–	–	373	–
28	120	–	–	–	–	55	–	–	–	–	372	–
29	–	–	–	–	114	136	–	–	–	–	374	–
30	–	–	–	–	90	76	–	–	–	–	330	–
31	–	–	–	–	72	75	–	–	–	–	328	–
9-1	–	–	–	–	–	70	–	–	–	75	328	–
2	–	–	199	–	–	–	–	–	–	–	321	–
3	120	–	215	195 5	324	452	–	–	–	75 102	322	–
4	–	–	–	145	–	–	–	–	–	126	271	–
5	–	–	–	175	–	–	–	–	–	138	313	–
6	–	–	–	116	–	–	–	–	–	120	329	–
7	–	–	–	126	–	–	–	–	–	144	333	–
8	–	–	–	116	–	–	–	–	–	138	346	–
9	–	–	–	–	–	–	–	–	–	132	344	–
10	–	–	213 73	683	–	126	–	–	–	400	308	–
11	–	–	118	–	–	102	–	–	–	–	298	–
12	–	–	53	–	–	–	–	–	–	–	335	–
13	–	–	99	–	–	–	–	–	–	–	351	–
14	–	–	77	–	–	105	–	–	–	–	320	–
15	–	–	–	40	–	45	–	–	–	–	369	–
16	–	–	–	–	–	–	–	–	–	–	344	–
17	–	–	420	40	–	375	–	–	–	–	249	–
18	–	–	140	–	–	–	–	–	–	–	319	–
19	–	–	105	–	–	–	85	–	–	–	319	–
20	–	–	–	–	–	–	55	–	–	–	318	19
21	126	–	–	–	–	–	–	–	–	–	331	–
22	24	–	–	–	–	–	–	–	–	–	321	–
23	–	–	–	–	–	–	–	–	–	–	272	–
	150	–	24	–	–	–	140	–	–	–	29	–
24	–	–	–	–	–	–	–	–	–	–	258	–
25	–	–	–	–	–	–	–	–	–	–	280	–
26	–	–	–	–	–	–	–	–	–	–	313	–
27	–	–	–	–	–	–	–	–	–	–	306	–
28	130	–	–	–	–	–	–	–	–	–	228	–
29	51	–	–	–	–	–	–	–	–	–	277	–
30	187	–	–	–	–	–	–	–	–	–	270	–
	168	–	–	–	–	–	–	–	–	–	1132	–
	435	–	1.79	918	324	830	140	–	–	175	11070	1
	210678	✓	525473	465426	151308	395910	72800			468975		92235
	✓		✓	✓	✓	✓	✓			✓	5,453,370	✓

SB 068200

Total	Dryden 7.B	Gd. Prairie	Eddy	Buckeye	Alphanier	Allied S.W.	Domtar	Allied H.W.	Pr Albert	Potlatch	South West	Terrace Bay
	~~397~~ 473	587	397	560	518	500	507	497	504	418	537	414
373	—	—	—	—	—	—	—	—	—	—	40	—
372	—	—	—	—	—	175	—	22	—	—	—	—
374	—	—	—	—	—	40	—	84	—	—	—	—
330	—	—	—	—	—	95	—	69	—	—	—	—
328	—	—	—	—	—	175	—	6	—	—	—	—
328	—	—	—	—	—	93	—	—	—	—	10	—
321	—	—	—	—	—	20	—	—	—	—	102	—
322	—	—	—	—	—	95	—	171	—	—	—	—
271	—	—	—	—	—	—	—	—	—	—	—	—
313	—	—	—	—	—	—	—	—	—	—	—	—
329	—	—	—	—	—	—	—	—	—	—	93	—
333	—	—	—	—	—	—	—	—	—	—	63	—
346	—	—	—	—	—	82	—	—	—	—	10	—
344	—	—	—	—	—	212	—	—	—	—	—	—
308	—	—	—	—	—	109	—	—	—	—	—	—
298	—	—	—	—	—	78	—	—	—	—	—	—
335	—	—	—	—	—	156	—	—	—	—	126	—
351	—	—	—	—	—	114	—	—	—	—	138	—
320	—	—	—	—	—	12	—	—	—	—	126	—
369	—	—	55	—	—	—	—	—	—	—	229	—
344	—	—	168	—	—	44	—	—	—	—	126	—
349	—	—	229	—	—	63	66	—	—	—	145	—
319	—	—	—	—	—	63	72	—	—	—	—	—
318	—	—	—	—	—	73	159	—	—	—	—	—
331	195	60	—	—	—	8	54	—	—	—	—	—
321	—	84	145	—	—	196	—	—	—	—	—	—
272	—	133	105	—	—	168	—	—	—	—	—	—
320	175	183	163	—	—	20	—	—	—	—	—	15
258	—	—	105	—	—	677	110	—	—	—	—	15
280	—	—	73	—	—	—	—	—	132	—	—	21
313	—	—	23	—	—	133	—	—	102	—	—	—
306	—	—	38	—	—	101	—	—	114	—	—	—
228	—	—	—	—	—	—	60	—	84	—	175	—
271	—	—	151	—	—	—	168	—	30	—	—	—
270	—	—	139	—	—	—	24	—	51	—	—	—
1432	—	—	519	—	—	234	252	—	564	—	171	21
11070	175	285	899	—	—	2336	498	131	564	—	1312	36
	92235	167295	356903			1,168,000	252486	89957	284256		736764	14904
5,455,370	✓	✓	✓			✓	✓	✓	✓		✓	

Mach 7, 8 + 9
Mill D

Sept 1979 507 481 397 Pulp Used In Hydropulper 500 327 467 497

Date	Superior	Kamloops	Simpson	Nahola	Marathon	Crestbrook	Gd Prairie	Allied SW	West Vaco	Pr George	Total	Allied HW
				462	487	520	587					
8-27	80	24	–	–	–	–	–	6	–	–	324	2
28	–	58	–	–	–	–	–	202	–	–	360	16
29	60	–	–	–	–	–	90	140	–	–	300	1
30	172	–	–	–	–	–	–	140	–	–	312	–
31	218	–	–	–	–	–	–	202	–	–	420	–
9-1	144	–	–	92	84	–	–	76	–	–	396	–
2	–	200	–	–	96	–	–	–	–	–	384	–
3	–	24	–	92	186	–	90	766	–	–	384	12
4	–	–	–	–	–	48	–	–	–	–	348	–
5	–	–	–	–	–	240	–	–	–	–	360	4
6	–	–	–	–	–	16	–	84	–	–	396	10
7	–	–	–	–	–	–	–	8	–	–	312	64
8	–	–	–	–	–	–	–	–	–	–	384	114
9	–	–	–	–	–	48	–	48	–	24	336	11
10	–	24	–	–	–	352	–	120	–	132	336	8
11	–	–	–	–	–	20	–	174	–	–	360	11
12	–	–	–	–	–	54	–	218	–	–	312	
13	–	–	–	–	–	42	–	246	–	–	324	–
14	–	132	–	–	–	12	–	132	–	–	384	–
15	–	32	–	–	–	–	–	188	–	–	348	–
16	–	–	–	–	–	–	–	176	–	96	288	–
17	–	[illegible]	–	–	–	128	–	128	–	162	288	1
18	–	–	–	–	–	–	–	202	–	86	288	–
19	–	–	–	–	–	–	–	128	–	100	300	–
20	–	24	–	–	–	–	–	160	–	56	324	–
21	–	36	–	–	–	–	–	124	–	–	276	–
22	–	–	–	–	–	52	–	140	–	–	348	–
23	–	–	–	–	–	–	24	116	–	–	48	–
24	–	86	–	–	–	52	24	978	–	–	[illegible]	–
25	–	–	–	–	80	–	84	52	–	–	336	–
26	–	–	–	–	68	–	24	52	–	–	276	–
27	–	–	–	–	4	–	120	204	–	–	408	–
28	–	–	–	–	–	–	100	252	–	–	420	–
29	–	–	–	–	–	–	–	232	–	–	334	–
30	–	–	–	–	–	–	–	244	–	–	396	–
	–	–	–	–	152	–	328	116	–	–	348	–
	671	5[illegible]	–	72	32	532	442	4290	–	656	[illegible]	
	341,718	264550		42504	161684	276640	259454	2,145,000		306352		40654

5,937,632

Total	497 Allied HW	477 Celgar	473 ~~397~~ Dryden F.B.	489 Bruns-wick	397 Eddy	481 Dryden Semi Bl.	414 Terrace Bay	537 Southwest + Panama	512 Noral	462 Missouk	504 Pr ALBERT	5[illegible]7 Domtar
324	26	76	—	—	—	—	—	—	—	—	113	—
360	100	—	—	—	—	—	—	—	—	—	—	—
300	10	—	—	—	—	—	—	—	—	—	—	—
312	—	—	—	—	—	—	—	—	—	—	—	—
420	—	—	—	—	—	—	—	—	—	—	—	—
396	—	—	—	—	—	—	—	—	—	—	—	—
384	—	88	—	—	—	—	—	—	—	—	—	—
384	136	128	232	—	—	—	—	—	—	—	112	—
348	—	116	184	—	—	—	—	—	—	—	—	—
360	44	76	—	—	—	—	—	—	—	—	—	—
396	100	8	—	—	—	—	—	104	—	—	84	—
312	66	—	—	—	—	—	—	118	—	—	120	—
384	114	—	—	—	—	—	—	270	—	—	—	—
336	114	—	—	—	—	—	—	102	—	—	—	—
336	84	328	416	—	—	—	—	594	—	—	204	—
360	110	—	—	—	—	—	—	20	—	—	36	—
312	4	—	36	—	—	—	—	—	—	—	—	—
324	—	36	—	—	—	—	—	—	—	—	—	—
384	—	108	—	—	—	—	—	—	—	—	—	—
348	—	—	—	—	128	—	—	—	—	—	—	—
288	—	—	36	—	16	—	—	—	—	—	—	—
288	198	144	18	—	144	—	—	20	—	—	[illegible]	—
288	—	—	—	—	—	—	—	—	—	—	—	—
300	—	—	—	—	—	—	—	—	—	—	72	—
324	—	—	—	—	—	—	—	—	—	—	84	—
336	—	—	—	—	—	—	—	—	—	—	96	—
348	—	—	—	—	—	—	136	—	—	—	20	—
348	—	—	—	—	208	—	—	—	—	—	—	—
2172	—	—	18	—	208	—	136	—	—	—	212	—
336	—	—	—	—	120	—	—	—	—	—	—	—
276	28	80	—	—	24	—	—	—	—	—	—	—
408	—	80	—	—	—	—	—	—	—	—	—	—
420	—	48	—	—	—	—	—	—	—	—	20	—
384	18	—	—	—	—	—	—	—	—	—	84	—
396	—	—	—	—	96	—	—	—	—	—	56	—
348	—	—	—	—	232	—	—	—	—	—	—	—
2518	46	268	—	—	472	—	—	—	—	—	160	—
12058	818	844	470	—	824	—	136	614	—	—	784	—
	406546	402588	222310		327128		56304	329718			395136	

Mach 5-6
Mill C
Sept 1979

Chemicals ① Used In ② Beater ③ ④

DATE	Alum #	SIZE #	CLAY gal	Ansilex	SCM	Nalco 680	Titanium	Zealex	Ti-Pure	Du-Pont	Total	Ax
8-27	315	795	7800	3850	–	156	6500	–	–	–	19416	–
28	289	691	6600	4175	–	153	7113	–	–	–	19021	–
29	280	638	5500	4500	–	136	8000	–	–	–	19054	–
30	228	594	5600	4425	7775	138	–	–	–	–	18760	
31	175	578	5600	3250	4200	132	2850	–	–	–	16785	
9-1	210	716	5600	1500	6450	136	–	–	–	–	14612	
2	245	815	5600	2000	5100	140	–	–	–	–	13900	
3	315	848	3050	600	2050	173	–	–	–	–	7036	–
4	298	1238	1700	–	425	106	–	–	–	–	3767	–
5	385	1691	2650	1650	2750	136	–	–	–	–	9263	–
6	315	984	5900	1350	2250	132	–	–	–	–	10931	–
7	385	851	7200	1350	2300	144	–	–	–	–	12230	–
8	350	746	7100	3550	3900	142	3100	–	–	–	18888	–
9	350	754	7500	1250	2375	150	1150	–	–	–	13529	–
10	350	723	7400	3700	7400	148	4250	–	–	–	19721	–
11	315	593	6000	3000	6000	120	–	–	–	–	16028	–
12	350	688	7000	3025	3200	140	3950	–	–	–	18353	–
13	350	688	7000	2875	8250	140	–	–	–	–	19303	–
14	280	674	6800	2325	4600	140	1600	–	–	–	16419	–
15	350	775	8000	1000	2350	160	200	–	–	–	12835	–
16	350	570	6800	1000	–	136	3350	–	–	–	12206	–
	2345	4711	49000	16925	21800	184	9100	–		–	11485	
17	245	535	5800	700	–	116	–	–	1750	–	9146	
18	350	1297	3800	1000	–	140	450	–	3500	–	9521	
19	315	2258	1800	1350	–	136	–	–	2700	–	8559	–
20	245	2363	1100	1050	–	124	3400	–	–	–	8282	
21	315	1179	4450	1625	–	124	4300	–	1625	–	13618	–
22	368	553	6300	3900	–	126	10475	–	–	–	21722	
23	403	542	5750	4575	10475	122	–	–	–	–	21867	–
	[illegible]	[illegible]	290	[illegible]	[illegible]	[illegible]	[illegible]	–		–	[illegible]	
24	350	456	4250	3450	750	92	5950	–	–	–	15298	–
25	315	543	6200	4650	–	124	8850	–	–	–	20682	–
26	368	724	4850	6075	–	138	11675	–	–	–	23830	–
27	210	643	800	5450	–	116	–	–	8900	–	16169	–
28	193	719	2950	5650	–	94	2875	–	8100	–	20581	–
29	280	888	4750	3475	–	126	600	–	7375	–	17494	–
30	280	900	5600	1600	–	128	4000	–	1200	–	13708	–
	7996	4773	44450	[illegible]	750	[illegible]	[illegible]	–		–	[illegible]	–
	10722	[illegible]44	[illegible]00	94925	32600	4664	70388	–	34100	–	[illegible]	–

SA 068204

Total	(4) Ax	Alpha-size
19416	—	—
19021	—	—
19054	—	—
18766	—	—
16785	—	—
14612	—	—
13900	—	—
7036	—	—
3767	—	—
9262	—	—
10931	—	—
12230	—	—
18888	—	—
13529	—	—
19721	—	—
16028	—	—
18353	—	—
19303	—	—
16419	—	—
12835	—	—
12206	—	—
11455	—	—
9146	—	—
9531	—	—
8569	—	—
8282	—	—
13618	—	—
21722	—	—
21867	—	—
7272	—	—
15298	—	—
20682	—	—
23830	—	—
16169	—	—
20581	—	—
17494	—	—
13708	—	—
17[illegible]	—	—
32543	—	—

SA 068205

Mach 7, 8 + 9
Mill D
Sept. 1979

Chemical ① Used In Beater ②

DATE	ALUM #	SIZE #	CLAY gal	Ansilex	SCM	Nalco 680	Ax	Il-Ture	Camel wite	Calcium Carbonate	Total	Titanium ③
8-27-79	2545	1926	7400	1350	4600	267	–	–	–	–	18088	–
28	2660	1460	7550	1500	5500	279	–	–	–	–	18949	–
29	2250	1155	5000	2850	8900	225	–	–	–	–	20380	–
30	3150	1860	2470	4800	16800	315	–	3200	–	–	325[illegible]	–
31	2835	1558	5045	4000	9450	284	–	2650	–	–	25522	–
9-1	3060	2248	7550	6650	6875	307	–	–	–	–	29440	2750
2	3060	2335	8510	6450	9000	306	–	1900	–	–	31561	–
3	3180	2753	9520	6450	7600	318	–	2400	–	–	32221	–
4	2885	2615	7860	7200	11800	294	–	–	–	–	32654	–
5	2895	1980	9100	6400	9150	273	–	3050	–	–	32848	–
6	2435	1885	7910	3950	6200	282	–	1800	–	–	24462	–
7	1950	1565	6540	2450	4900	240	–	–	–	–	17645	–
8	2910	1885	9880	2950	9050	291	–	–	–	–	26966	–
9	2880	1790	10450	2950	8500	288	–	–	–	–	26858	–
10	2840	2205	6670	4800	13350	279	–	7250	–	–	30144	–
11	2700	1490	8670	5250	8850	270	–	–	–	–	27230	–
12	2310	1155	8700	4900	6825	231	–	–	–	–	24121	–
13	2670	2965	11550	4850	7750	267	–	–	–	–	30052	–
14	2835	1663	9235	5900	8475	284	–	–	–	–	28392	–
15	2880	1740	9850	4800	8350	288	–	–	–	–	27908	–
16	2880	2100	8910	6550	12150	288	–	–	–	–	32878	–
17	2400	1813	6720	5600	10600	239	–	–	–	–	27372	
18	2630	1860	5290	5550	8400	248	–	–	–	–	27228	3350
19	2385	1880	3530	4750	6550	234	–	–	–	–	22379	3050
20	2843	2258	5085	5675	12375	273	–	–	–	–	25508	–
21	2290	2325	4580	5800	11200	240	–	–	–	–	26435	
22	2575	2693	4180	7250	10850	276	–	–	–	–	33324	4500
23	2290	2438	3770	7700	15850	240	–	–	–	–	32288	–
24	1970	1860	3200	7000	15000	222	–	–	–	–	29252	
25	2625	1740	6060	4800	10925	273	–	–	–	–	26423	–
26	2610	2235	1050	6600	7600	273	–	6300	–	–	26668	–
27	2815	2385	–	7600	14300	297	–	–	–	–	27391	–
28	2640	1820	2350	5700	2350	264	–	6300	–	–	23024	1600
29	2725	1985	3940	6750	600	288	–	14000	–	–	30288	–
30	2515	1490	5810	3450	4250	267	–	4650	–	–	22432	–
	1790	[illegible]	[illegible]	41900	[illegible]	1978	–	31250	–	–	[illegible]	
	93123	69115	2271[illegible]	1[illegible]12 25	314925	15[illegible]	–	46250			9[illegible]	1[illegible]

SB 068206

Total	Titanium (3)	Zeolex	Alpha-Size
18053	—	—	—
13947	—	—	—
20380	—	—	—
22595	—	—	—
25822	—	—	—
29440	2750	—	—
31561	—	—	—
32237	27[illegible]	—	—
32654	—	—	—
32848	—	—	—
24462	—	—	—
17645	—	—	—
26966	—	—	—
26858	—	—	—
30194	—	—	—
27230	—	—	—
24121	—	—	—
30052	—	—	—
28392	—	—	—
27908	—	—	—
32878	—	—	—
[illegible]	—	—	—
273 72	—	—	—
272 28	3230	—	—
233 79	3060	—	—
285 08	—	—	—
264 32	—	—	—
323 24	4000	—	—
322 88	—	—	—
[illegible]	[illegible]	—	—
292 52	—	—	—
264 23	—	—	—
266 68	—	—	—
273 91	—	—	—
280 34	1600	—	—
302 85	—	—	—
294 38	—	—	—
[illegible] 4 79	[illegible]	—	—
233 26	151[illegible]	—	—

SA 068207

Jack Shockley
No R+D Trials

Sept 1979 x389 x809 Blade Coater x10 x727 Chemicals x437

DATE	LATEX 673 gal	# Defoamer D7-122	Stearate DC-111 gal	Kelgin HV #	TSPP #	CLAY gal. HT	WAX	Ammonia gal	Uvitex #	Camil wite #	LATEX 6107 gal	PG-208 #	74-B Pencore
8-29-79	325	6	15	22	24	937		9	51	–	–	–	–
30	434	–	20	30	32	1250		12	68	–	–	–	–
31	434	8	20	30	32	1250		12	68	–	–	–	–
9-1-79	651	–	30	45	48	1875		18	102	–	–	–	–
3	434	–	20	30	32	1250		12	34	–	–	–	–
4	434	–	20	30	32	1250		12	34	–	–	–	–
5	599	–	28	55	49	1720		18	68	–	–	–	–
6	160	–	8	25	17	470		6	–	–	–	–	–
7	495	–	24	75	51	1410		18	–	–	–	–	–
8	330	–	16	50	34	940		12	–	–	–	–	–
10	330	–	16	50	34	940		12	–	–	–	–	–
11	165	4	8	25	17	470		6	–	–	–	–	–
12	370	–	23	48	46	1407		15	34	–	–	–	–
13	217	4	10	15	16	625		6	34	–	–	–	–
17	651	–	30	45	48	1875		18	102	–	–	–	–
18	651	–	30	45	48	1875		18	102	–	–	–	–
19	1033	–	48	85	81	2970		30	136	–	–	–	–
20	495	–	24	75	51	1410		18	–	–	–	–	–
21	495	–	24	75	51	1410		18	–	–	–	–	–
22	1816	–	38	70	65	2345		27	102	–	–	–	–
23	868	–	40	60	64	2500		24	136	–	–	–	–
24	868	–	40	60	64	2500		24	136	–	–	–	–
25	868	–	40	60	64	2500		24	136	–	–	–	–
26	434	–	20	30	32	1250		12	68	–	–	–	–
27	651	–	30	45	48	1875		18	102	–	–	–	–
28	1085	–	50	75	80	3125		30	170	–	–	1200	–
29	868	–	40	60	64	2500		24	136	–	–	–	–
30	–	–	–	–	–	–		–	–	–	–	–	–
	16[illegible]		71[illegible]		15[illegible]	45125		6[illegible]	[illegible]	–	–	[illegible]	–
	62477		576[illegible]	✓	✓	439376		4567	✓			✓	
	✓	✓	✓			✓		✓					

068208

PG-208 #	74-B Pencore	Staysize 112 #	Clinsize ~~723 B~~ 123 B	NOPCOCIDE 120	CALGON T #	Glycerione	Nopcosant X gal	Cello-lose	CMC-7L	Scriptset 720 gal 1,221	7C-807 gal	239 Atlas 1,536
			600									
			300									
1200		3000	2100									
300		3600										
1500 ✓		6600 ✓	1600 ✓									

5297 55

SR 0068209

620 LATEX gal	722 LATEX gal	D7-122NS #	Borax #	LV PROTEIN	SODIUM NITRATE #	PREZ 707 gal x10	H. ICLAY Dry	MISSIPPI CLAY	Hyd. CLAY	FORMULA 2036 gal	Evanol *	Sept DATE
—	—	—	—	—	—	—	—	—	—	—	—	8-27-7
—	—	8	—	—	—	—	—	—	—	—	—	28
—	—	—	—	—	—	—	—	—	—	—	—	29
—	—	12	—	—	—	—	—	—	—	—	—	30
—	—	8	—	—	—	—	—	—	—	—	—	31
—	—	8	—	—	—	—	—	—	—	—	—	9-1
—	—	12	—	—	—	—	—	—	—	—	—	3
—	—	4	—	—	—	—	—	—	—	—	—	4
—	—	12	—	—	—	—	—	—	—	—	—	5
—	—	8	—	—	1800	—	—	—	—	—	100	6
—	—	8	—	—	700	—	—	—	—	—	—	7
—	—	—	—	—	—	—	—	—	—	—	—	8
220	—	15	—	—	—	—	—	—	—	—	—	10
—	—	—	—	—	—	—	—	—	—	—	—	11
—	—	12	—	—	—	—	—	—	—	—	—	12
—	—	12	—	—	—	—	—	—	—	—	—	13
—	—	20	—	—	—	—	—	—	—	—	—	17
—	—	12	—	—	—	—	—	—	—	—	—	18
—	—	12	—	—	—	—	—	—	—	—	—	19
—	—	16	—	—	—	—	—	—	—	—	—	20
—	—	16	—	—	—	—	—	—	—	—	—	21
—	—	24	—	—	—	—	—	—	—	—	—	22
—	—	16	—	—	—	—	—	—	—	—	—	23
—	—	8	—	—	—	—	—	—	—	—	—	24
—	—	12	—	—	—	—	—	—	—	—	—	25
—	—	20	—	—	—	—	—	—	—	—	—	26
—	—	16	—	—	—	—	—	—	—	30	—	27
20	—	[illegible]	—	—	20	—	—	—	—	—	10	28
✓		✓			✓		—			✓	✓	29

SA 068210

Sept 1979 Blade Coater Broke

Evanol *	DATE	Uncoated	Coated Broke	Total	R-D Trial Uncoated	R-D Trial Coated Broke	R-D Trial Total
–	8-27-79	1400	6700	8100			
–	28				1730	7250	8980
–	29	930	6130	7060			
–	30	1990	5290	7280			
–	31	1250	4480	5730			
–	9-1	1600	2075	3675			
–	3	1600	3750	5350			
–	4	800	3700	4500			
–	5	1200	5250	6450			
100	6	880	2890	3770			
–	7	1730	5050	6780			
–	8	640	4190	4830			
–	10	630	4070	4700			
–	11	1350	3880	5230			
–	12	720	4790	5510			
–	13				600	650	1250
–	17	460	7980	8440			
–	18	1950	13250	15200			
–	19	1700	10720	12420			
–	20	2000	11830	13830			
–	21	1079	9743	10820			
–	22	1015	5515	6530			
–	23	1665	12605	14270			
–	24	530	3543	4073			
–	25	510	5380	6198			
–	26	750	4980	5730			
–	27	3605	7305	10910			
100	28	2130	6940	9070			
✓	29	4765	6755	11520			
		39200	168775	207975	2330	7760	10090

SA 068211

Ed Arnold Ext. 250

October 1979

Mill "C" Chemicals

DATE	ALUM (gal. 3960 tk.)	CLAY	SIZE (GAl x .25)	CLINTON (675B 185 753)	CLINSIZE	Stazyme-J (x100)	Staysize 112 (x100)	Titanium	Ansilex	Defoamer (x8.09)	CP-7 (x8.42)	NALCO 680
10-1-79	7.00	158.40	14.32	–	–	48.00	–	40.00	16.00	15	1.00	2
2	4.50	158.40	22.40	–	–	48.00	24.00	40.00	16.00	15	1.50	124
3	6.50	118.80	32.95	–	–	24.00	18.00	32.00	13.50	15	.50	16
4	6.50	514.80	7.65	–	–	132.00	–	21.00	3.00	15	1.00	13
5	7.00	435.60	7.87	–	–	132.00	–	41.25	12.75	15	1.50	14
6	11.50	554.40	7.98	–	–	120.00	–	11.00	–	15	1.00	168
7	8.00	594.00	8.20	–	–	98.00	–	21.00	4.00	15	1.00	17
8	8.50	356.40	7.55	–	–	96.00	–	67.50	27.00	15	1.00	14
9	6.50	356.40	6.42	–	–	84.00	–	74.75	31.25	15	1.00	15
10	9.00	435.60	17.69	–	–	60.00	–	22.50	13.00	15	1.50	14
11	12.50	316.80	23.64	–	–	24.00	25.00	12.75	8.50	15	1.50	15
12	7.00	316.80	7.95	–	–	84.00	–	80.00	40.00	15	1.50	9
13	6.50	277.20	5.08	–	–	96.00	–	72.50	38.00	15	1.00	9
14	7.00	198.00	6.40	42.00	–	96.00	–	74.00	39.50	15	1.50	9
15	5.00	158.40	5.25	–	–	72.00	–	62.50	34.00	15	.50	84
16	4.50	237.60	8.40	–	–	84.00	–	75.50	46.00	15	1.00	11
17	7.00	435.60	6.32	–	–	98.00	–	48.00	22.00	15	.50	15
18	6.50	514.80	6.02	–	–	110.00	–	92.00	30.00	15	1.00	14
19	9.00	356.40	11.47	–	–	108.00	24.00	86.50	25.50	15	1.25	14
20	7.00	158.40	25.90	–	–	12.00	24.00	24.50	14.00	15	.75	16
21	6.50	118.80	3.30	–	–	24.00	18.00	27.50	14.00	15	.50	15
22	7.00	396.00	5.02	–	–	120.00	–	42.50	20.50	15	1.25	10
23	7.00	554.40	5.60	–	–	146.00	–	85.00	35.25	15	1.25	13
24	6.50	554.40	7.20	–	–	134.00	–	115.50	53.00	15	1.00	14
25	5.50	435.60	8.47	–	–	96.00	–	90.50	35.00	15	1.00	12
26	5.00	195.00	14.80	–	–	60.00	18.00	78.00	31.00	15	1.00	14
27	8.50	158.40	26.85	–	–	24.00	30.00	17.00	10.00	15	.50	16
28	6.50	237.60	26.87	–	–	36.00	12.00	20.50	10.25	15	.25	16
	199.00	1506.00	37.57	4[illegible].00	–	[illegible]	17[illegible].00	1475.7[illegible]	[illegible]	42[illegible]		
										[illegible]	1.07	

SA 068212

x 8.42 CP-7	680 NALCO	x .08 Paramel	Alum-on-tank	CLAY tank	x 100 Sodium Nitrate	gal Alpha Size
100	96	21220	3	1300	–	–
150	124	30460	2	1200	8800	–
50	160	37860	3	600	6600	–
100	136	600	3	4600	–	–
150	142	–	3	3400	–	–
100	168	–	5	4500	–	–
100	170	–	4	5500	–	–
100	140	–	4	2900	–	–
100	150	–	5	3000	–	21
150	148	22000	4	3700	–	54
150	152	28200	6	2500	10000	50
150	98	1000	3	2200	–	48
100	92	–	3	3000	–	42
150	96	–	3	1800	–	–
50	84	–	3	1300	–	30
100	112	–	2	1800	–	48
50	154	–	3	3400	–	48
100	144	–	3	4200	–	48
125	148	6500	4	3100	7000	42
75	160	31140	3	700	8800	42
50	152	31500	3	800	6600	60
125	108	3380	3	3600	–	72
125	136	–	3	4400	–	72
100	143	–	3	4600	–	61
100	124	–	3	4100	–	–
100	144	12000	2	1700	6600	–
50	168	29020	4	1100	11000	–
25	169	26440	3	1100	4400	–
[illegible]	[illegible]	231320	93	76100	71800	738
22187		22506				

Oskar Dikerts

October 1979

Mill "D" Chemicals

DATE	GIVE	SIZE 120 x +K.	C-7 gal	J x100	CLINCO 55 x100	Titanium x50	71-M NALCO	CLAY COUNTER x5400	Sodium ALUMINATE
10-1 79	7	480	–	–	112.00	98.00	–	– 2	1
2	8	840	–	–	96.00	111.00	–	– 6	2
3	9	720	–	–	80.00	35.00	–	– 3	–
4	10	480	–	–	160.00	44.00	–	– 8	1
5	49	360	–	–	128.00	110.00	–	10 ✓	1
6	102	540	–	–	160.00	69.00	–	2 ~~28~~	1
7	41	440	–	–	176.00	–	–	– 5	1
8	51	540	–	–	156.00	168.00	–	7 ✓	1
9	49	440	–	–	128.00	–	–	3 ✓	1
10	102	720	–	–	80.00	110.00	–	3 ✓	1
11	98	440	–	–	160.00	146.50	–	5 ✓	1
12	147	540	–	–	144.00	113.00	–	5 ✓	1
13	98	720	–	–	160.00	88.50	–	8 ✓	1
14	23	480	–	–	198.00	144.00	–	– 5	7
15	49	540	–	–	96.00	57.00	–	4 ✓	1
16	49	540	–	–	136.00	39.00	–	7 ✓	1
17	98	360	–	–	164.00	94.50	–	8 ✓	1
18	98	540	–	–	128.00	132.00	–	3 ✓	1
19	2	380	–	–	112.00	95.00	–	3	–
20	2	480	–	–	154.00	95.00	–	– 20	–
21	3	720	–	–	188.00	100.00	–	– –	–
22	2	540	–	–	128.00	105.00	–	– 2	–
23	98	540	–	–	160.00	105.00	–	–	1
24	147	540	–	–	144.00	160.00	–	20	1
25	49	240	–	–	112.00	134.50	–	2	1
26	42	480	–	–	56.00	152.00	–	–	–
27	43	840	–	–	64.00	112.00	–	–	1
28	45	360	–	9.00	160.00	125.50	–	–	1
	1[illegible]21	148.40	–	9.00	3740.00	274[illegible]	–	123	29

SA 068214

CLAY Roto-Dip Usage (gallons)

Date	#5	#6	Total
10-1-79	3152	2020	5172
2	3664	2375	6039
3	3280	610	3890
4	4000	5225	9225
5	6004	2492	8496
6	9761	3921	13682
7	10191	4470	14661
8	3920	712	4632
9	6290	1966	8256
10	5475	4348	9823
11	6295	3197	9492
12	4189	2655	6844
13	2202	3374	5576
14	1798	1979	3777
15	1340	1654	2994
16	2178	2270	4458
17	2004	5375	7379
18	2664	4270	6934
19	2332	4013	6345
20	4206	657	4863
21	5644	153	5797
22	4776	3678	8454
23	5854	6059	11913
24	7141	5484	12625
25	7064	2625	9689
26	9520	816	10336
27	10770	1005	11775
28	9785	1789	11574
	145499	79202	224701

SQ 868215

Larry Vogler Ext 202 + 205

October 1979

Mill "E" Chemicals

48

DATE	SOY Flour	H.T. CLAY	CASEIN	H.T. CLAY TK.	CAMIL WITE	CAUSTIC SODA	LATEX DOW 620	LATEX DOW 636	TSPP	ULTRA Blue	Parez Resin	Red BxP
1-2-3	–	–	8 00	40000	208	85	9600	–	112	–	–	–
4-5	–	–	600	32500	156	–	7200	–	184	–	–	–
6-8	–	–	650	32500	169	170	7800	–	118	–	–	–
9-10	–	–	600	300 00	150	200	7200	–	75	–	–	–
11-12	–	–	500	250 00	130	100	6000	–	70	–	–	–
15-16	–	–	650	32500	169	–	7800	–	91	–	–	–
17-18	–	–	750	37500	195	–	9000	–	105	–	–	–
19-20	–	–	550	27500	143	–	6600	–	77	–	–	–
22-23	–	–	–	27500	143	–	6600	–	77	–	–	–
24-25	–	–	360	30000	143	–	6600	–	77	–	–	–
26-27	–	–	100	25000	130	90	6000	–	70	–	–	–
	–	–	5560	340000	1736	645	80400	–	1048	–	–	–
			✓	✓	✓	✓	38592		✓			
							✓					

SB 868216

Parez Resin	Red BxP	Ammonia x 1.27	Salt	Borax	NOPCO 178 x 7.73	Formaldehyde	ProCote Protein	LATEX # DOW 620	Staley StaCote 120	Dylex Latex	Sarnia LATEX	Urea
–	–	336	–	240	416	400	5600	–	–	–	–	–
–	–	252	–	180	350	300	4200	–	–	–	–	–
–	–	273	–	195	364	325	4550	–	–	–	–	–
–	–	240	–	180	300	300	4200	–	–	–	–	–
–	–	210	12650	150	250	250	3500	–	–	–	–	–
–	–	286	–	195	325	325	4500	–	–	–	–	–
–	–	330	–	225	375	375	5250	–	–	–	–	–
–	–	220	–	165	308	275	3850	–	–	–	–	/
–	–	242	–	165	275	275	3850	–	–	–	–	–
–	–	231	–	165	330	300	4150	–	–	–	–	–
–	–	220	–	150	250	250	4000	–	–	–	–	/
–	–	2840	12650	2010	3543	3275	[illegible]	–	–	–	–	2
		[illegible]47 ✓		✓	[illegible]7 ✓	✓	✓					

001302

SH 068217

Mach. 5+6
Mill C

October 1979 — Pulp Used In Hydropulper

DATE	Dryden Semi Bl. 481	NAHOLA 462	Marathon 487	Superior 307	Pr. George 467	Celgar 477	Crest Brook 520	Bruns-wick 489	West-vaco 327	Kamloops 481	TOTAL	Dryden F.B. 397
10-1/79	188	–	–	–	–	–	–	–	–	–	236	–
2	105	–	–	–	–	145	–	–	–	–	310	–
3	30	–	–	–	–	245	–	–	–	–	323	–
4	–	–	–	–	–	92	–	–	–	–	326	–
5	–	–	–	48	–	156	–	–	–	–	349	–
6	–	–	–	–	–	380	–	–	–	–	384	–
7	–	111	–	–	–	272	–	–	–	–	383	–
	323	111	–	48	–	1290	–	–	–	–	2311	–
8	–	191	35	–	–	12	–	–	–	102	352	–
9	–	–	190	–	–	–	25	–	–	126	341	–
10	–	–	–	–	–	–	195	–	–	80	315	–
11	–	–	–	–	–	217	20	–	–	64	345	–
12	–	–	–	–	–	164	–	–	–	–	252	–
13	–	–	–	–	–	182	–	–	–	–	252	–
14	–	–	–	–	–	62	–	–	–	–	234	–
	–	191	225	–	–	637	240			372	2171	–
15	–	–	–	–	–	–	–	–	–	25	210	–
16	–	–	15	–	–	–	–	–	–	130	270	–
17	–	–	–	–	–	–	–	–	–	–	282	–
18	–	–	–	–	–	–	–	–	–	–	276	–
19	–	–	70	–	–	–	–	–	–	–	302	–
20	–	–	245	–	–	–	–	–	–	–	353	–
21	–	–	65	–	–	–	–	–	–	–	331	–
	–	–	[illegible]	–	–	–	–	–	–	[illegible]	[illegible]	–
22	–	208	–	–	–	–	–	–	–	–	326	–
23	–	129	–	–	–	–	–	–	–	–	319	–
24	–	–	–	–	–	–	–	–	–	–	287	–
25	–	–	46	–	–	–	–	–	–	–	290	–
26	8	–	148	–	–	–	–	–	–	–	355	–
27	–	–	–	–	–	–	200	–	–	–	387	8
28	–	–	220	–	–	–	30	–	–	–	369	7
	8	[illegible]	[illegible]	–	–	–	230	–	–		[illegible]	[illegible]
	331	639	1034	48	–	1927	470	–	–	527	8759	16

SA 068218

Total	397 Dryden F.B.	587 Gd. Prairie	397 Eddy	560 Buckeye	518 Alphanier	500 Allied S.W.	507 Domtar	497 Allied H.W.	504 Pr. Albert	418 Potlatch	537 South-West	414 Terrace Bay
236	—	—	—	—	—	—	—	—	48	—	—	—
310	—	—	—	—	—	—	—	—	60	—	—	—
323	—	—	—	—	—	18	—	—	30	—	—	—
326	—	—	—	—	—	234	—	—	—	—	—	—
349	—	—	—	—	—	145	—	—	—	—	—	—
384	—	—	—	—	—	4	—	—	—	—	—	—
383	—	—	—	—	—	—	—	—	—	—	—	—
2311	—	—	—	—	—	401	—	—	[illegible]	—	—	—
352	—	—	—	—	—	—	—	—	12	—	—	—
341	—	—	—	—	—	—	—	—	—	—	—	—
315	—	—	—	—	—	40	—	—	—	—	—	—
345	—	12	—	—	—	32	—	—	—	—	—	—
252	—	64	—	—	—	24	—	—	—	—	—	—
252	—	—	—	—	—	28	—	—	42	—	—	—
234	—	57	—	—	—	25	—	—	—	—	90	—
2071	—	133	—	—	—	149	—	—	54	—	46	—
210	—	54	—	—	—	24	—	—	—	—	107	—
270	—	84	—	—	—	29	—	—	—	—	13	—
282	—	102	—	—	—	180	—	—	—	—	—	—
276	—	90	—	—	—	186	—	—	—	—	—	—
302	—	6	—	—	—	148	—	—	78	—	—	—
353	—	—	—	—	—	—	—	—	108	—	—	—
331	—	—	170	—	—	—	—	—	96	—	—	—
2034	—	326	170	—	—	567		—	[illegible]	—	1[illegible]	
326	—	—	—	—	—	10	—	—	108	—	—	—
319	—	—	—	—	—	100	—	—	90	—	—	—
287	—	—	—	—	—	215	—	—	72	—	—	—
290	—	—	—	—	—	160	—	—	84	—	—	—
355	—	—	—	—	—	111	—	—	88	—	—	—
387	88	—	55	—	—	44	—	—	—	—	—	—
369	72	—	—	—	—	47	—	—	—	—	—	—
2333	160	—	125	—	—	687	—	—	442	—	—	—
8759	160	469	225	—	—	1804	—	—	916	—	209	—

SA 068219

Mach 7,8-9
Mill D

October 1979 Pulp Used In Hydropulper

DATE	507 Superior	481 Kamloops	397 Simpson	462 Nahala	487 Marathon	520 Crestbrook	587 Gd Prairie	500 Allied S.W.	327 West Vaco	467 Pr. George	Total	497 Allied H.W.
10-1 79	–	24	–	–	–	–	–	116	–	–	324	–
2	–	148	–	–	–	–	–	96	–	–	276	4
3	–	136	–	–	–	–	–	124	–	–	276	16
4	–	–	–	–	–	–	–	288	–	–	288	–
5	96	–	–	–	–	–	–	288	–	–	384	–
6	–	–	–	–	–	–	–	–	–	–	420	–
7	–	–	–	92	–	–	–	272	–	–	468	–
	96	308	–	92	–	–	–	1184	–	–	[illegible]	[illegible]
8	–	72	–	–	–	–	–	–	–	–	360	–
9	–	210	–	–	–	84	–	–	–	–	336	–
10	88	–	–	–	–	86	–	246	–	–	420	–
11	112	–	–	68	–	–	–	32	–	–	372	–
12	96	–	–	132	–	–	–	–	–	–	396	–
13	96	–	–	96	–	–	–	152	–	–	468	–
14	–	–	–	28	–	–	–	196	–	–	372	–
	392	282	–	324	–	170	–	626	–	–	2724	–
15	–	–	–	–	–	–	–	58	–	–	210	–
16	–	–	–	–	–	–	–	190	–	–	308	–
17	–	–	–	–	–	–	–	109	–	–	328	–
18	–	–	–	–	–	–	–	76	–	–	254	–
19	–	–	–	–	–	–	–	106	–	–	240	–
20	–	–	–	–	–	–	–	204	–	–	316	4[illegible]
21	112	–	–	–	–	–	–	200	–	–	372	40
	112	–	–	–	–	–	–	143	–	–	[illegible]	8
22	136	–	–	–	–	–	–	136	–	–	320	–
23	–	–	–	–	–	–	–	222	–	–	350	16
24	–	–	–	100	–	–	–	86	–	–	334	8
25	–	–	–	170	–	–	–	–	–	–	272	–
26	–	–	–	101	–	–	–	–	–	–	245	–
27	–	–	–	–	–	–	120	108	–	–	358	–
28	–	178	–	–	–	–	12	146	–	–	336	–
	136	178	–	371	–	–	132	698	–	–	[illegible]	[illegible]
	736	768	–	787	–	170	132	3451	–	–	9403	13[illegible]

[redacted]

[redacted]

Total	497 Allied H.W	477 Celgar	473 Dryden F.B	489 Bruns-wick	397 Eddy	481 Dryden Semi Bl.	414 Terrace Bay	537 South West	512 Noral	462 Missoula	504 Pr Albert	507 Domtar
324	–	–	–	–	184	–	–	–	–	–	–	–
276	4	–	–	–	28	–	–	–	–	–	–	–
276	16	–	–	–	–	–	–	–	–	–	–	
288	–	–	–	–	–	–	–	–	–	–	–	
384	–	–	–	–	–	–	–	–	–	–	–	–
420	–	–	–	–	40	–	–	–	380	–	–	–
468	–	–	–	–	104	–	–	–	–	–	–	–
[illegible]	[illegible]	–	–	–	[illegible]	–	–	–	[illegible]	–		
360	–	128	–	–	160	–	–	–	–	–	–	–
336	–	42	–	–	–	–	–	–	–	–	–	–
420	–	–	–	–	–	–	–	–	–	–	–	–
372	–	–	–	–	–	–	–	160	–	–	–	–
396	–	–	–	–	120	–	–	48	–	–	–	–
468	–	–	–	–	124	–	–	–	–	–	–	–
372	–	–	–	–	–	–	–	–	–	–	148	–
2724	–	170	–	–	404	–	–	208	–	–	[illegible]	–
210	–	–	–	–	56	–	–	–	–	–	96	–
308	–	–	–	–	36	–	–	–	–	–	62	–
328	–	–	110	–	–	–	–	–	–	–	104	–
254	–	–	–	–	100	–	–	–	–	–	78	–
240	–	–	–	–	110	–	–	–	–	–	24	–
316	48	–	–	–	64	–	–	–	–	–	–	–
372	40	–	–	–	20	–	–	–	–	–	–	–
2023	88	–	110	–	386	–	–	–	–	–	[illegible]	–
320	–	–	–	–	–	–	–	–	–	–	48	–
350	16	–	–	–	–	–	–	–	–	–	112	–
334	8	–	–	–	–	–	–	–	–	–	140	–
272	–	–	–	–	–	–	–	6	–	–	96	–
245	–	–	48	–	–	–	–	–	–	–	96	–
358	–	–	94	–	–	–	–	–	14	–	22	–
336	–	–	–	–	–	–	–	–	–	–	–	–
1215	24	–	142	–	–	–	–	6	14	–	[illegible]	–
9403	32	170	252	–	1146	–	–	214	394	–	1051	–

Mach 5+6
Mill C
October 1979

Chemicals ① Used In ② Beater ③ ④

DATE	Alum #	SIZE #	CLAY gal.	Ansilex	SCM	Nalco 680	Titanium	Zealex	Ti-Pure	Du-Pont	Total	Ax
10-1 79	280	1100	800	1600	–	96	–	–	2400	–	6276	–
2	280	4038	800	1600	–	124	–	–	4000	–	10842	–
3	280	3251	800	1350		150	1700	–	1500	–	7031	–
4	280	635	6600	300	950	136	–	–	1150	–	10051	–
5	350	622	7100	1275	2950	142	800	–	400	–	13639	–
6	385	736	2200	1100	–	168	–	–	–	–	4589	–
7	385	744	8500	400	2100	170	–	–	–	–	12299	–
	2240	11126	26800	7625	6000	986	2500	–	9450	–	66727	–
8	280	656	5450	3900	6750	140	900	–	–	–	18076	–
9	298	789	4850	3125	4850	150	2625	–	–	–	16693	–
10	840	1410	3850	700	1200	140	1050	–	–	–	9802	–
11	298	2164	1700	850	–	152	1275	–	–	–	6439	–
12	280	438	3200	4000	4000	98	4000	–	–	–	16064	–
13	245	400	3100	3800	–	92	7250	–	–	–	14929	–
14	245	425	3250	3950	–	96	7400	–	–	–	15408	–
	86	6282	15400	20325	16[illegible]00	865	24500	–	–	–	97411	–
15	175	400	2900	3400	–	84	6250	–	–	–	13239	–
16	280	537	3800	4600	–	112	7550	–	–	–	16927	–
17	280	534	6900	2200	–	154	4800	–	–	–	14916	–
18	280	490	6850	3000	–	144	9200	–	–	–	20012	–
19	245	903	6450	2550	–	148	8650	–	–	–	18988	–
20	245	2475	900	1400	–	160	2450	–	–	–	7672	–
21	245	2385	1050	1400	–	152	2750	–	–	–	7982	–
	1750	7724	[illegible]	[illegible]	–	454	41[illegible]50	–	–	–	[illegible]	–
22	280	333	5000	2050	–	108	4250	–	–	–	12093	–
23	280	464	6500	3550	4100	138	4500	–	–	–	19604	–
24	236	508	6813	3800	11400	143	–	–	–	–	22761	–
25	280	641	5200	3500	1500	124	7550	–	–	–	18795	–
26	350	1470	3100	3100	7800	144	–	–	–	–	15964	–
27	350	2650	1000	1000	1700	168	–	–	–	–	6868	–
28	368	2663	1050	1050	2050	169	–	–	–	–	7350	–
	144	729	[illegible]	[illegible]	[illegible]550	494	[illegible]	–	–	–	[illegible]	–
	8620	33861	109713	64550	51350	3802	84950	–	9450	–	367509	–

Total	Ax (4)	Alpha-Size (8.13)	Cyclo 4:1
6276	–	–	–
10842	–	–	–
9031	–	–	–
10051	–	–	–
13639	–	–	–
4589	–	–	–
12299	–	–	–
66727	–	–	–
18076	–	–	–
16693	–	6	–
9802	–	12	600
6439	–	–	–
16064	–	48	–
14929	–	42	–
15408	–	42	–
97411	–	150	600
13239	–	30	–
16927	–	48	–
14916	–	48	–
20012	–	48	–
18988	–	42	–
7672	–	42	–
7982	–	–	–
17776	–	258	–
12093	–	72	–
19604	–	72	–
22961	–	61	–
18795	–	–	–
15964	–	–	–
6868	–	–	–
7350	–	–	–
13635	–	205	–
31756	–	613	600

SA 068223

Mach. 7, 8 + 9
Mill D

October 1979

Chemical (1) Used In (4) Beater (2)

DATE	Alum #	SIZE #	CLAY qnc.	Ansilex	SCM	Nako 680	Ax	Ti-Pure	Camel wite	Calcium Carbonate	Total	(3) Titaniu
10-1-79	20.00	14.60	62.60	36.50	72.50	2.58	–	–	–	–	226.78	18.0
2	18.90	19.95	9.00	56.00	–	1.92	–	111.00	–	–	216.77	–
3	21.90	17.03	39.40	18.00	–	2.22	–	29.00	–	–	133.55	6.0
4	25.60	13.35	89.50	11.00	6.50	2.67	–	10.75	–	–	185.37	–
5	29.10	15.85	90.00	37.00	–	2.79	–	70.00	–	–	270.24	–
6	30.90	18.90	80.63	56.50	99.00	3.09	–	17.50	–	–	306.52	–
7	28.50	20.45	70.00	77.50	110.50	2.85	–	15.00	–	–	324.80	–
	174.90	120.13	441.13	212.50	288.50	18.12	–	253.25	–	–	1[illegible].403	24.[illegible]
8	28.00	18.95	87.50	62.25	–	1.65	–	–	–	–	320.70	–
9	23.45	18.20	29.50	77.00	129.50	2.49	–	37.50	–	–	317.64	–
10	27.40	25.25	31.00	79.00	37.00	2.79	–	7.50	–	–	280.01	–
11	27.65	24.65	60.50	72.50	41.50	2.76	–	–	–	–	318.21	–
12	29.95	25.45	68.50	57.00	100.00	2.79	–	–	–	–	300.19	–
13	29.35	19.95	77.50	50.50	96.00	3.03	–	–	–	–	276.48	–
14	27.00	14.10	73.50	76.00	142.50	2.70	–	–	–	–	342.44	6.5
	192.80	146.55	428.00	474.25	546.50	13.36	–	45.00	–	–	2[illegible].[illegible]7	6.5
15	19.35	9.68	77.75	35.50	56.00	1.94	–	–	–	–	200.24	–
16	28.25	17.93	81.50	12.50	37.75	2.73	–	–	–	–	180.80	–
17	27.30	6.45	108.75	43.00	87.00	7.5	–	–	–	–	280.83	7.0
18	25.20	14.25	82.70	62.50	124.50	9.9	–	–	–	–	311.57	1.0
19	21.00	14.85	56.30	75.75	96.50	1.8	–	–	–	–	264.61	–
20	29.70	16.55	81.00	81.75	135.50	10.2	–	–	–	–	345.52	–
21	29.10	19.65	66.50	108.00	148.50	9.9	–	–	–	–	372.74	–
	179.70	[illegible]	554.[illegible]	41[illegible]	[illegible]	6.0	–	–	–	–	17[illegible]	8.[illegible]
22	26.70	21.10	47.20	101.00	135.50	6	–	–	–	–	331.56	–
23	27.98	22.50	48.30	97.75	131.25	–	–	–	–	–	327.78	–
24	24.30	18.45	22.20	100.50	152.00	2.43	–	–	–	–	319.88	–
25	23.70	15.15	30.60	86.50	134.50	2.37	–	–	–	–	292.82	–
26	19.20	13.45	27.40	75.50	127.56	1.92	–	12.00	–	–	276.97	–
27	22.45	17.30	37.20	111.50	116.00	2.34	–	–	–	–	334.29	27.[illegible]
28	24.25	18.22	64.15	78.00	78.25	2.45	–	24.00	–	–	289.32	–
	165.[illegible]	[illegible]	277.05	600.75	575.00	11.57	–	36.00	–	–	2173.62	27
	716.18	492.21	1700.68	1836.50	2395.75	171.35	–	334.25	–	–	7948.63	[illegible]

SB 868224

③

Total	Titanium	Zealex	Alpha-size	Unitane	Biocide
32678	1800	–	–	–	–
31677	–	–	–	–	–
13355	600	–	–	–	–
18537	–	–	–	2600	–
27024	–	–	–	2550	–
30652	–	–	–	–	–
32480	–	–	–	–	–
[illegible]403	2400	–	–	5150	–
32070	–	–	–	750	–
31764	–	–	–	–	–
28001	–	–	–	7000	7
31821	–	–	–	8850	15
30019	–	–	–	1500	150
27648	–	–	–	–	15
34244	650	–	–	–	14
105[illegible]7	650	–	–	18100	201
30024	–	–	–	–	2
18080	–	–	–	–	14
28083	700	–	44	–	14
31157	100	–	43	–	–
26461	–	–	–	–	3
34552	–	–	–	–	–
37274	–	–	–	–	–
[illegible]631	800	–	87	–	33
33156	–	–	–	–	–
32778	–	–	–	–	–
31988	–	–	–	–	–
29282	–	–	–	–	–
27697	–	–	–	–	–
33429	2750	–	–	–	–
28932	–	–	–	–	–
17262	275[illegible]	–	–	–	–
348[illegible]	66[illegible]00	–	87	23250	234

ack Shockley
o R+D Trials

October 1979 x3.99

Blade Coater Chemicals

DATE	LATEX 673 gal	Defoamer D7-122	Stearate DC-111 gal (x8.09)	Kelgin AV #	TSPP #	CLAY gal HT WAX (x10)	Ammonia gal	Uvitex (x7.27)	Camil Wite #	LATEX 6107 gal (x4.37)	PG 208	74-B Pencore
10-1-79	868	16	40	60	64	2500	24	136	–	–	–	–
2	217	25	10	15	26	1563	22	34	100	–	–	–
3	–	30	–	–	15	1407	24	–	150	–	1800	–
4	–	22	–	–	5	2344	39	–	800	–	–	–
5	–	4	–	–	–	266	10	–	200	–	–	–
6-7	651	12	30	45	62	1895	18	102	–	–	–	–
8	868	16	40	60	64	2500	24	136	–	–	–	–
9	868	16	40	60	64	2500	24	136	–	–	–	–
10	868	16	40	60	64	2500	24	136	–	–	–	–
11	868	16	40	60	64	2500	24	136	–	–	–	–
12	868	16	40	60	64	2500	24	136	–	–	–	–
15	651	12	30	45	48	1875	18	102	–	–	–	–
16	434	32	20	30	32	2130	33	68	500	–	–	–
17	–	25	–	–	15	–	40	–	750	–	–	–
18	434	8	20	30	32	1250	12	68	–	–	–	–
19	868	16	40	60	64	2500	24	136	–	–	700	–
20	651	12	30	45	48	1875	18	102	–	–	–	–
21	868	16	40	60	64	2500	24	136	–	–	–	–
22	868	16	40	60	64	2500	24	136	–	–	–	–
23	651	12	30	45	48	1875	18	102	–	–	–	–
24	651	12	30	45	48	1875	18	102	–	–	–	–
25	868	16	40	60	64	2500	24	136	–	–	–	–
26	651	12	30	45	48	1875	18	102	–	–	–	–
27	382	8	18	40	33	1095	12	34	–	–	600	–
	14053	[illegible]	[illegible]	185	1100	46325	540	2176	[illegible]	–	[illegible]	–
00 R+D	651	68	30	45	82	5912	91	102	1150		1800	
	13402	218	618	940	101[illegible]	40413	449	2074	[illegible]	–	[illegible]	–
	52134	✓	5000	✓	✓	404130	3264	✓	✓		✓	
	✓		✓			✓	✓					

09228 86

G 208	74-B Pencore	Staysize 112#	Clinsize 753	NoPcocide 120	CALGON # T	Glycerione	Nopcosant gal K	Cello-lose	CMC-7L	Scriptset x227 720 gal	7C-807 gal	239 Atlas
—	—	1200	—	—	—	—	—	—	—	—		
—	—	2800	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	7	—	—	—	—	—
—	—	—	—	—	—	—	2	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	900	—	—	—	—	—	—	—	—	—	—
—	—	600	—	—	—	—	5	—	—	—	—	—
—	—	900	—	7	—	—	—	—	—	—	—	—
—	—	900	—	—	—	—	—	—	—	—	—	—
700	—	500	—	—	—	—	—	—	—	—	—	—
—	—	1500	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	3000	—	—	—	—	—	—	—	—	—	—
—	—	1200	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	1200	—	—	—	—	—	—	—	—	—	—
—	—	2400	—	—	—	—	—	—	—	—	—	—
600	—	300	—	—	—	—	—	—	—	—	—	—
[illegible]	—	17400	—	7	—	—	14	—	—	—	—	—
1800							9					
[illegible]	—	17400	—	7	—	—	5	—	—	—	—	

524884

SD 068222

620 gal LATEX	722 LATEX gal	86325 Beroet ~~D7 122NS~~ #	Borax #	LV PROTEIN	Sodium Nitrate #	PREZ 707 gal x10	H.T. CLAY Dry	Missippi Clay	Hyb. Clay	Formula 2036 gal	Evanol #	Oct DATE
–	–		–	–	–	–	–	–	–	–	–	10-1
440	–	15	30	600	6300	–	–	–	–	–	–	2
660	–	23	45	900	3100	–	–	–	–	–	300	3
880	264	32	62	1200	–	–	–	–	–	–	–	4
147	100	5	10	200	–	–	–	–	–	–	–	5
–	240	–	4	200	–	–	–	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	8
–	–	–	–	–	–	–	–	–	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	10
–	–	–	–	–	–	–	–	–	–	–	–	11
–	–	–	–	–	–	–	–	–	–	–	150	12
440	176	16	32	600	–	–	–	–	–	–	100	15
660	264	24	48	900	–	–	12000	–	–	–	–	16
–	–	–	–	–	–	–	–	–	–	–	–	17
–	–	–	–	–	–	–	–	–	–	–	–	18
–	–	–	–	–	–	–	–	–	–	–	–	19
–	–	–	–	–	–	–	13000	–	–	–	–	20
–	–	–	–	–	–	–	–	–	–	–	–	21
–	–	–	–	–	–	–	–	–	–	–	–	22
–	–	–	–	–	–	–	–	–	–	–	–	23
–	–	–	–	–	–	–	–	–	–	–	–	24
–	–	–	–	–	–	–	–	–	–	–	–	25
–	–	–	–	–	–	–	–	–	–	–	–	26
32[illegible]7	1[illegible]44	11[illegible]	[illegible]31	4600	[illegible]	–	[illegible]	–	–	–	[illegible]	27
1687	604	60	117	2300	3100						300	
1540	440	55	114	2300	6300	–	25000	–	–	–	[illegible]	
✓	✓		✓	✓	✓		✓				✓	

October 1979 Blade Coater Broke

# Evanol	DATE	Uncoated	Coated Broke	Total	Trial Uncoated	Trial Coated	Trial Total
–	10-1	2620	12380	15000			
–	2	3470	9600	13070			
300	3				–	13600	13600
–	4				–	8650	8650
–	5				900	2350	3250
–	6				1400	5400	6800
–	7				2250	3900	6150
–	8	800	15150	15950			
–	9	1300	6120	7420			
–	10	3350	4900	8250			
–	11	1300	4750	6050			
150	12	1700	5900	7600			
100	15	2100	6700	8800			
–	16	3100	10300	13400			
–	17	1850	5350	7200			
–	18	1800	2900	4700			
–	19	1100	4500	5600			
–	20	1060	10980	12040			
–	21	11300	7700	19000			
–	22	660	5200	5860			
–	23	1910	14125	16035			
–	24	2160	11760	13920			
–	25	3080	10560	13640			
–	26	1005	8650	9655			
550	27	2990	11890	14880			
300		43655	169415	31070	4550	29100	33450
250							

Ed Arnold Ext 250

Nov. 1979

Mill "C" Chemicals

DATE	ALUM (GAL)	CLAY (3960 ~~tk~~)	SIZE (GAL x 25)	CLINTON (6758 LBS)	CLINSIZE (753)	Stazyme-J (x100)	Staysize 112 (x100)	Titanium	Ansilex	Defoamer (x809)	CP-7 (x842)	NALCO (68)
10-29-79	5.00	198.00	20.45	–	–	36.00	–	19.00	9.00	15	75	13
30	7.00	356.40	5.33	–	–	96.00	–	59.50	27.50	15	50	11
31	6.50	316.80	8.23	–	–	96.00	–	95.50	43.75	15	100	11
11-1	7.50	396.00	9.63	–	–	84.00	–	97.50	45.50	15	50	14
2	6.00	198.00	7.23	–	–	–	–	85.50	36.50	15	100	10
3	9.00	158.40	4.80	–	–	–	–	96.50	48.00	15	150	12
4	6.50	198.00	4.40	–	–	–	–	80.50	44.00	15	150	12
5	6.00	158.40	4.53	–	–	–	–	86.00	48.00	15	150	13
6	3.00	79.20	4.45	–	–	–	–	51.00	26.75	10	50	8
7	10.50	356.40	8.58	–	–	8.00	–	75.50	40.50	10	100	13
8	9.50	237.60	9.87	–	–	–	33.00	81.50	42.00	15	150	14
9	7.00	198.00	8.50	–	–	–	–	77.50	47.00	15	250	5
10	7.00	237.60	12.75	–	–	–	–	70.00	41.50	15	150	–
11	9.00	237.60	18.08	–	–	–	18.00	36.00	18.00	15	100	–
12	9.00	158.40	23.94	–	–	–	18.00	36.00	18.00	15	100	–
13	7.00	198.00	23.70	–	–	–	12.00	46.50	20.00	15	100	–
14	8.50	396.00	6.04	–	–	–	–	49.00	24.50	10	100	–
15	9.00	396.00	5.15	–	–	24.00	–	37.00	22.00	10	150	–
16	9.00	396.00	6.63	–	–	84.00	–	58.00	35.00	10	200	–
17	6.50	356.40	7.03	–	–	72.00	–	77.75	48.25	15	55	–
18	7.50	356.40	7.76	–	–	96.00		62.50	36.50	15	155	–
19	3.50	316.80	9.55	–	–	72.00	–	76.00	38.00	10	205	–
20	7.50	396.00	10.48	–	–	96.00	–	66.50	32.50	15	155	–
21	5.00	554.00	7.13	–	–	96.00	–	21.00	9.00	15	100	–
22	4.50	594.00	8.25	–	–	132.00	–	13.50	9.00	15	180	14
23	4.50	514.80	8.15	–	–	96.00	–	30.00	17.50	15	180	–
24	7.00	356.40	8.58	–	–	72.00	–	77.50	41.50	15	155	–
25	6.00	277.20	9.63	–	–	60.00	–	51.75	31.75	10	105	
	144.00	8542.20	268.85	–	–	1220.00	81.00	1714.[illegible]	90[illegible]	3.85	–	–
						✓	✓			31.15	30[illegible]	

x842

CP-7	NALCO 680	Paramel x 08	Alum-on-tank	CLAY TANK	Sodium Nitrate x100	Alpha SIZE gal	Powder Starch x100
75	136	30280	2	1700	–	–	–
50	116	–	3	3200	–	–	–
100	118	–	3	2000	–	–	–
50	140	–	3	3400	–	–	3600
100	100	–	3	1700	–	–	7200
150	120	–	4	2400	–	72	8400
150	128	–	3	1700	–	54	8400
150	136	–	3	1300	–	63	6000
50	81	–	1	700	–	36	2400
100	132	–	5	2900	–	–	7200
150	140	–	4	2000	–	–	6000
250	46	–	3	1800	–	–	4800
150	–	3500	3	2300	–	–	6000
100	–	28000	4	2000	6900	–	4800
100	–	22000	4	1300	6900		2400
100	–	27360	3	1600	4800	–	2400
100	–	–	4	3000	–	–	8400
150	–	–	4	3400	–	–	4800
200	–	–	4	3500	–	–	–
55	–	–	3	2100	–	–	–
155	–	–	3	3100	–	–	–
205	–	–	2	2800	–	–	–
155	–	–	3	2700	–	–	–
100	–	–	2	4800	–	–	–
180	148	–	2	4300	–	–	–
180	–	–	2	4600	–	–	–
155	–	–	3	2400	–	–	–
105	–	6500	3	2900	–	–	–
[illegible]	541	92440	86	71600	18600	225	82200
[illegible]		7395	x220				

18,920 gallons

5.45

103114 xBS

Oskar Dikerts

Nov 1979 Mill "D" Chemicals

DATE	Glue	Size 120 x tk.	C-7 gal.	J x100	Clinco 55 x100	Titanium x50	71-M Nalco	Clay Counter x5400	Sodium Aluminate
10-29-79	46	480	—	—	18000	11350	—	5	—
30	48	720	—	—	8400	6100	—	4	1
31	50	720	—	—	12600	5850	—	5	—
11-1-79	52	720	—	—	11200	3300	—	4	1
2	98	540 960	—	—	11400	7500	—	3	—
3	56	720	—	—	12800	12500	—	3	—
4	49	480 360	—	—	6400	12500	—	4	—
5	49	260 240	—	—	19200	12500	—	2	—
6	49	540 480	—	—	14400	12500	—	2	1
7	48	480 600	—	—	8000	12500	—	2	—
8	98	540 480	—	—	11200	11000	—	1	—
9	98	360 240	—	—	12800	9350	—	20	1
10	—	540 240	—	—	14400	11700	—	5	1
11	97	360 360	—	—	14400	11850	—	6	1
12	49	480 240	—	—	8000	12800	—	4	1
13	98	540 360	—	—	8000	9500	—	6	1
14	49	720 360	—	—	11200	13000	—	3	1
15	49	440 360	—	—	11200	9250	—	5	1
16	49	360	—	—	10000	21900	—	3	1
17	49	500 480	—	—	14400	9250	—	3	1
18	98	500	—	—	14400	12500	—	3	2
19	49	360 480	—	—	14400	12500	—	3	—
20	98	540 720	—	—	16000	9250	—	3	1
21	98	360 1200	—	14000	14400	11250	—	3	1
22	147	540 240	—	—	9600	9250	—	3	1
23	98	720	—	—	9400	6950	—	3	—
24	98	480	—	—	14400	14300	—	5	1
25	98	480	—	—	12800	13700	—	3	—
	1965	14480	—	[illegible]	343400	305[illegible]00	—	~~81~~ 116	18
								626400	

CLAY Roto-Dip Usage (gallons)

DATE	#5	#6	Total
10-29-79	35 30	34 97	70 27
30	61 25	19 34	80 59
31	85 30	815	93 45
11-1	87 61	26 74	114 35
2	21 66	335	25 01
3	–	636	636
4	720	815	15 35
5	908	12 66	21 74
6	19 80	125	21 05
7	24 10	18 40	42 50
8	29 95	9 99	39 94
9	27 00	–	27 00
10	33 80	791	41 71
11	33 60	23 54	57 14
12	33 18	14 24	47 42
13	41 79	5 24	47 03
14	60 64	20 47	81 11
15	31 66	37 45	69 11
16	72 45	25 32	97 77
17	47 88	26 01	73 89
18	42 85	24 12	66 97
19	48 78	16 29	65 07
20	43 25	17 30	60 55
21	56 00	53 07	109 07
22	39 14	48 33	87 47
23	60 84	37 97	98 81
24	56 46	17 65	74 11
25	49 06	23 76	72 82
	1159 63	548 03	1707 66

Harry Vogler Ext. 202 + 205

Nov. 1979

Mill "E" Chemicals

DATE	Soy Flour	HT CLAY	CASEIN	H.T CLAY TK.	CAMIL WITE	CAUSTIC SODA	LATEX DOW 620	LATEX DOW 634	TSPP	ULTRA BLUE	Parez Resin	Red Bx P
10-29+30	–	–	100	25000	130	190	6000	–	70	–	–	–
31+1	–	–	100	25000	130	–	–	–	70	–	–	–
11-1-79	–	–	–	–	–	–	–	–	–	–	–	–
2+3	–	–	50	30000	130	30	–	–	125	20	–	–
5+6	–	–	120	30000	156	90	–	–	84	–	–	–
7+8	–	–	120	32500	156	–	–	–	96	–	–	–
9+10	–	–	100	25000	130	–	–	–	150	–	–	–
12 & 13	–	–	110	27500	143	–	1800	–	77	–	–	–
14 & 15	–	–	110	27500	143	–	6600	–	77	–	–	–
16 & 17	–	–	110	27500	143	–	6600	–	77	–	–	–
18 & 20 & 21	–	–	420	37500	1132	210	8400	–	453	–	–	–
	–	–	1340	287500	2393	420	33400	–	1279	20	–	–
			✓	✓	✓	✓	11232 ✓		✓	✓		✓

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868234

Parez Resin	Red BxP	x727 Ammonia	Salt	Borax	x7.73 NoPCO 178	Formaldehyde	Pro Cote Protein	# LATEX Dow 620	Staley StaCote 620	Dylex Latex	NoPCO 1407 ~~Sarnia~~ Latex	Alc.
–	–	220	–	150	250	250	4000	–	–	–	–	–
–	–	220	–	150	250	250	4000	–	–	6000	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–
–	1	121	–	150	425	250	4000	–	1661	6000	–	–
–	–	261	–	180	360	300	4800	–	–	7200	–	–
–	–	252	–	180		300	4800	–	–	7200	–	–
–	–	210	–	150	300	250	4000	–	–	6000	–	–
–	–	235	–	165	–	275	4400	–	–	4800	330	1
–	–	235	–	165	–	275	4400	–	–	–	330	–
–	–	235	–	165	–	275	4400	–	–	–	330	–
–	–	275	–	920	–	375	6050	–	–	–	–	1
–	1	2264	–	1325	1585	28[illegible]	44[illegible]	–	1661	37200	910	2
	✓	16459		✓	122[illegible]	✓	✓		✓	✓	✓	✓
		✓			✓							

Mach 5-6
Mill C

Nov 1979 — Pulp Used In Hydropulper

DATE	Dryden Semi 481	NAHOLA 462	Marathon 487	Superior 507	Ft George 467	Celgar 477	Crest-Brook 520	Bruns-wick 489	West-vaco 327	Kamloops 481	Total	Dryden 7.B 397
10-29-79	40	—	—	—	20	—	—	—	—	—	294	—
30	—	—	—	—	80	—	—	—	—	—	230	—
31	—	147	—	—	100	—	—	—	—	—	391	—
11-1-79	—	175	—	122	—	—	—	—	—	—	297	—
2	—	135	—	96	—	—	—	—	—	—	231	—
3	—	180	—	102	—	—	—	—	—	—	382	—
4	—	213	—	30	—	—	—	—	—	—	343	—
	40	850	—	350	200	—	—	—	—	—	[illegible]	—
5	—	107	—	—	—	—	—	—	—	—	347	—
6	12	—	—	—	—	—	—	—	—	—	168	—
7	64	—	198	—	—	—	—	—	—	—	294	—
8	100	—	199	—	—	40	—	—	—	—	349	—
9	36	—	190	—	—	114	—	—	—	—	340	—
10	—	—	175	—	—	162	—	—	—	—	337	—
11	—	—	213	—	—	—	—	—	—	—	375	—
	212	07	[illegible]	—	—	16	—	—	—	—	[illegible]	—
12	—	—	230	—	—	—	—	—	—	—	404	—
13	—	—	200	—	—	—	—	—	—	—	350	—
14	—	—	—	—	—	—	—	—	—	—	288	—
15	—	—	35	24	—	—	—	—	—	—	325	—
16	—	—	143	—	—	120	—	—	—	60	353	—
17	—	—	144	—	—	138	50	—	—	—	332	—
18	—	—	—	—	—	132	58	—	—	122	312	—
	—	—	[illegible]	[illegible]	—	[illegible]	[illegible]	—	—	[illegible]	[illegible]	—
19	—	—	—	—	—	102	90	—	—	123	360	—
20	—	—	—	—	—	—	—	—	—	57	327	—
21	—	—	—	—	—	—	—	—	—	—	327	—
22	—	—	—	—	—	—	—	—	—	—	356	—
23	—	—	—	—	—	—	—	—	—	150	339	—
24	—	—	—	—	—	—	—	—	—	176	298	—
25	—	—	—	—	—	—	60	—	—	—	301	—
	—	—	—	—	—	102	150	—	—	102	[illegible]	—
	2521	957	1727	374	200	808	258			690	[illegible]	
	121,212	442,134	841,049	189,618	93,400	385,416	134,160			331,890	4,319,048	

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868236

Total	397 Dryden F.B	587 Gd. Prairie	397 Eddy	500 Allied SW	507 Domtar	497 Allied HW	504 Pr Albert	537 South-west	414 Terrace Bay	560 Buckeye	[illegible]	INTER CON
294	—	12	—	30	—	—	—	—	—	12	180	
230	—	—	—	122	—	—	—	—	—	—	28	
291	—	—	—	—	—	—	—	—	—	—	44	
297	—	—	—	—	—	—	—	—	—	—	—	
231	—	—	—	—	—	—	—	—	—	—	—	
282	—	—	—	—	—	—	—	—	—	—	—	
303	—	—	—	—	—	—	60	—	—	—	—	
[illegible]	—	12	—	152	—	—	[illegible]	—	—	12	—	
347	—	—	138	—	—	—	102	—	—	—	—	
168	—	6	102	—	—	—	48	—	—	—	—	
294	—	—	—	—	—	—	32	—	—	—	—	
349	—	10	—	—	—	—	—	—	—	—	—	
340	—	—	—	—	—	—	—	—	—	—	—	
337	—	—	—	—	—	—	—	—	—	—	—	
375	—	162	—	—	—	—	—	—	—	—	—	
2210	—	178	240	—	—	—	122	—	—	—	—	
404	—	112	—	62	—	—	—	—	—	—	—	
350	—	108	—	42	—	—	—	—	—	—	—	
288	—	90	—	198	—	—	—	—	—	—	—	
325	—	60	—	206	—	—	—	—	—	—	—	
353	—	30	—	—	—	—	—	—	—	—	—	
332	—	—	—	—	—	—	—	—	—	—	—	
312	—	—	—	—	—	—	—	—	—	—	—	
[illegible]	—	400	—	[illegible]	—	—	—	—	—	—	—	
360	—	—	—	33	—	—	—	—	—	—	—	12
327	—	—	—	152	—	—	—	—	—	—	—	118
327	—	—	—	247	—	—	—	—	—	—	—	80
356	—	—	—	272	—	—	84	—	—	—	—	
339	—	—	—	97	—	—	92	—	—	—	—	
298	—	—	—	—	—	—	120	—	—	—	—	
301	—	—	145	—	—	—	96	—	—	—	—	
3308	—	—	145	801	—	—	392	—	—	—	—	210
8810		590	3185	1461			634			12	[illegible]	210

SA 068237

Mach 7, 8 + 9
Mill D

Nov. 1979

Pulp Used In Hydropulper

DATE	507 Superior	481 Kamloops	397 ~~Simpson~~	462 Nahola	487 Marathon	520 Crestbrook	6d 587 Prairie	500 Allied S.W.	327 West Vaco	467 Pr. George	Total	497 Allied HW.
10-29-79	–	184	–	–	–	–	–	148	–	–	336	4
30	–	40	–	–	–	–	–	208	–	–	324	76
31	–	80	–	–	–	–	–	280	–	–	360	–
11-1-79	–	164	–	–	–	–	–	140	–	–	304	–
2	–	108	–	144	–	–	6	46	–	–	388	–
3	–	102	–	210	–	–	18	–	–	–	330	–
4	–	160	–	125	–	–	–	–	–	–	309	–
	–	838	–	479	–	–	24	822	–	–	[illegible]	[illegible]
5	–	–	–	–	–	–	–	–	–	–	216	–
6	–	–	–	–	–	–	–	–	–	–	296	–
7	–	–	–	–	–	–	–	–	–	–	322	–
8	42	–	–	–	–	–	–	12	–	–	198	–
9	60	–	–	–	–	–	–	92	–	–	310	20
10	–	–	–	–	–	–	–	186	–	–	280	4
11	–	–	–	–	–	–	36	160	–	–	256	–
	102	–	–	–	–	–	36	450	–	–	1878	[illegible]
12	–	–	–	–	–	–	132	67	–	–	287	–
13	24	–	–	–	–	–	72	–	–	–	248	–
14	24	–	–	–	–	–	84	–	–	–	300	–
15	–	–	–	–	–	–	–	–	–	–	360	–
16	–	–	–	–	–	–	–	–	–	–	336	4
17	–	–	–	–	–	144	–	96	–	–	360	–
18	–	–	–	–	120	24	–	120	–	–	396	10
	42	–	–	–	120	168	[illegible]	283	–	–	2287	1
19	–	–	–	–	184	–	–	–	–	–	348	2
20	–	–	–	–	–	–	–	188	–	–	372	76
21	–	–	–	–	–	–	–	124	–	–	336	34
22	–	–	–	–	–	–	–	168	–	–	360	–
23	–	–	–	–	–	136	–	–	–	–	312	64
24	–	–	–	–	–	16	–	72	–	–	336	2
25	–	–	–	–	–	–	–	80	–	–	360	40
	–	–	–	–	184	152	–	632	–	–	2421	26
	150	832	–	479	304	320	348	2187			8940	[illegible]
	76050	403078		221298	148048	166400	204276	1,093,500			4,338,878	142836

[redacted]

SB 068238

Total	497 Allied HW	477 Celgar	473 Dryden F.B.	489 Bruns-wick	397 Eddy	481 Dryden Sem. Bl	414 Terrace Bay	537 South west	512 Canada Noral	462 Missoula	504 PAPAMA HW-Southern Pr Albert	507 Domtar
336	4	—	—	—	—	—	—	—	—	—	—	—
324	76	—	—	—	—	—	—	—	—	—	—	—
360	—	—	—	—	—	—	—	—	—	—	—	—
304	—	—	—	—	—	—	—	—	—	—	—	—
388	—	—	—	—	84	—	—	—	—	—	—	—
330	—	—	—	—	—	—	—	—	—	—	—	—
309	—	2	—	—	12	—	—	—	10	—	—	—
2[illegible]1	80	2	—	—	96	—	—	—	10	—	—	—
216	—	16	—	—	90	—	—	—	110	—	—	—
296	—	6	—	—	110	—	—	—	180	—	—	—
322	—	—	—	—	202	—	—	—	120	—	—	—
198	—	—	—	—	100	—	—	—	44	—	—	—
310	20	—	—	—	120	—	—	—	18	—	—	—
280	4	—	—	—	90	—	—	—	—	—	—	—
256	—	—	—	—	60	—	—	—	—	—	—	—
1878	24	22	—	—	122	—	—	—	128	44	—	—
287	—	—	—	—	88	—	—	—	—	—	—	—
248	—	—	—	—	152	—	—	—	—	—	—	—
300	—	20	—	—	—	—	—	—	—	—	172	—
360	—	120	—	—	—	—	—	—	—	—	240	—
336	4	84	—	—	—	—	—	—	—	—	164	84
360	—	72	—	—	—	—	—	—	—	—	48	—
396	12	60	—	—	—	—	—	—	—	—	60	—
2287	16	356	—	—	212	—	—	—	—	—	92	14
348	28	40	—	—	—	—	—	—	16	—	32	48
372	26	8	—	—	—	—	—	—	—	—	60	40
336	36	—	36	—	—	—	—	—	—	—	16	124
360	—	—	—	—	—	—	—	—	72	—	—	120
312	68	—	108	—	—	—	—	—	—	—	—	—
336	20	28	12	—	—	—	—	—	164	—	24	—
360	40	40	—	—	—	—	—	—	200	—	—	—
2421	268	116	156	—	—	—	—	88	364	—	72	304
8940	388	4196	752	—	1108	—	—	88	802	144	180	880

Mach 5+6
Mill C
Nov. 1979

Chemicals Used In Beater

DATE	Alum #	SIZE #	CLAY gal	Ansilex	SCM ①	NALCO 680	Titanium ②	Zealex	Ti-Pure ③	Du-Pont	Total	Ax ④
10-29 79	3 15	20 90	11 00	9 00	–	1 36	19 00	–	–	–	64 41	–
30	3 50	4 95	28 00	27 50	–	96	41 50	–	–	–	106 41	–
31	4 20	5 89	42 75	42 75	–	1 14	93 50	–	–	–	190 23	–
11-1 79	3 85	8 58	71 00	45 50	–	1 40	97 50	–	–	–	227 83	–
2	2 10	4 76	48 50	36 50	–	96	85 50	–	–	–	178 47	–
3	2 80	4 10	65 00	48 00	–	32	103 50	–	–	–	224 44	–
4	2 10	3 95	49 80	44 00	–	1 28	80 50	–	–	–	182 17	–
	21 70	53 13	316 05	253 25	–	7 42	521 00	–	–	–	1173 96	–
5	2 45	4 94	34 10	48 00	–	1 36	86 00	–	–	–	176 85	–
6	3 24	3 37	29 20	26 63	–	81	42 50	–	8 25	–	114 00	–
7	2 45	10 73	33 00	40 50	–	1 32	75 50	–	–	–	163 50	–
8	3 50	7 10	44 00	42 00	–	1 16	122 00	–	–	–	219 76	–
9	4 03	7 61	54 50	47 00	–	1 46	77 50	–	–	–	191 10	–
10	4 20	10 47	57 50	43 00	–	–	73 00	–	–	–	188 17	–
11	4 20	15 50	24 00	18 00	–	–	36 00	–	–	–	97 70	–
	24 07	59 72	276 30	265 13	–	5 11	512 50	–	8 [illegible]	–	1151 08	–
12	4 20	17 50	24 00	18 00	–	–	36 00	–	–	–	99 70	–
13	3 94	17 69	18 50	23 88	–	–	46 25	–	–	–	110 26	–
14	3 85	5 10	53 50	24 50	–	–	49 00	–	–	–	135 95	–
15	2 80	4 28	62 00	8 00	–	–	16 00	–	–	–	93 08	–
16	3 85	4 93	70 00	–	–	–	58 00	–	–	–	171 78	–
17	3 68	5 61	58 25	48 25	–	–	79 75	–	–	–	195 54	–
18	3 15	5 69	62 00	36 50	–	–	62 50	–	–	–	169 84	–
	25 47	60 80	348 25	159 [illegible]	–	–	347 50	–	–	–	976 15	–
19	3 50	8 61	49 00	38 00	–	–	76 00	–	–	–	175 11	–
20	4 03	8 64	53 00	11 50	–	–	65 50	21 00	–	–	163 67	–
21	3 15	6 66	67 00	9 00	–	–	29 50	–	–	–	115 31	–
22	3 15	6 70	65 00	9 00	13 50	1 48	–	–	–	–	98 83	–
23	3 50	6 84	58 50	17 50	15 00	–	15 00	–	–	–	116 34	–
24	3 50	7 75	44 50	44 50	62 50	–	15 00	–	–	–	177 75	–
25	2 45	8 65	37 25	24 25	41 25	–	10 50	–	–	–	131 85	–
	23 28	53 85	374 25	154 25	132 25	1 48	211 50	21 00	–	–	978 86	–
	94 52	227 50	1314 85	831 76	132 25	14 01	1592 50	21 00	8 25		4280 05	

SA 068240

Total	(4) Ax	Alpha-Size (x 8.73)	Cyclo-7:1	PAPERHD
64 41	—	—	—	—
106 41	—	—	—	—
190 23	—	—	—	—
327 83	—	—	—	—
178 47	—	15	—	—
224 44	—	72	—	—
182 17	—	54	—	—
17[illegible]6	—	141	—	—
176 85	—	—	—	—
114 00	—	—	—	—
163 50	—	—	—	—
219 76	—	—	—	—
191 10	—	—	—	—
188 17	—	—	—	—
97 70	—	—	—	—
1151 08	—	—	—	—
99 70	—	—	—	—
110 26	—	—	—	—
135 95	—	—	—	—
93 08	—	—	—	—
171 78	—	—	—	35 00
195 54	—	—	—	—
169 84	—	—	—	—
976 15	—	—	—	35 00
175 11	—	—	—	—
163 67	—	—	—	—
115 31	—	—	—	—
98 83	—	—	—	—
116 34	—	—	—	—
177 75	—	—	—	—
131 85	—	—	—	7 00
928 86	—	—	—	7 00
[illegible]		1 41		42 00

Mach 7, 8 + 9
Mill D

Nov. 1979

Chemical ① Used In Booster ②

DATE	Alum #	Size #	CLAY	Ansilex	Scm	NALCO 680	Ax	Ti-Pure ③	Camel wite	Calcium Carbonate	Total	Titanium ④
10-29 79	25.50	17.55	52.50	67.00	87.00	2.55	–	24.00	–	–	276.10	–
30	30.45	22.61	45.55	35.25	30.00	3.05	–	–	–	–	199.91	–
31	27.53	19.46	32.88	57.25	20.00	2.75	–	46.00	–	–	216.37	–
11-1 79	25.80	20.70	30.00	44.00	–	2.49	–	66.00	–	–	188.99	–
2	29.15	18.38	59.10	38.50	–	.60	–	83.00	–	–	228.73	–
3	25.10	18.25	65.50	58.50	49.50	.87	–	97.50	–	–	315.22	–
4	18.65	17.43	24.00	99.00	116.50	.51	–	46.50	–	–	322.59	–
	182.18	134.38	309.53	399.50	303.00	12.82	–	303.00	–	–	1747.91	–
5	19.60	13.95	34.00	93.00	127.50	–	–	–	–	–	288.05	–
6	16.35	18.40	60.50	114.00	156.00	2.09	–	–	–	–	367.34	–
7	20.56	18.09	62.88	92.25	104.75	2.47	–	–	–	–	301.00	–
8	24.33	17.30	77.50	28.00	69.50	2.70	–	–	–	–	237.33	–
9	24.40	16.05	78.90	57.00	81.50	1.62	–	–	–	–	259.47	–
10	27.90	18.45	81.00	108.00	117.00	1.89	–	–	–	–	354.24	–
11	30.60	20.40	88.40	99.50	118.50	2.04	–	19.00	–	–	378.94	–
	163.74	122.64	483.18	591.75	774.75	12.81	–	19.00	–	–	2185.87	–
12	23.60	16.20	66.00	84.50	88.50	2.52	–	37.00	–	–	318.32	–
13	21.00	18.55	57.00	43.50	21.50	2.22	–	33.00	–	–	296.77	67
14	22.10	24.30	30.50	225	–	2.37	–	4.50	–	–	284.52	118
15	29.10	19.20	89.00	75.00	25.50	2.70	–	63.50	–	–	304.00	–
16	27.00	13.95	109.00	30.50	28.00	2.70	–	11.00	–	–	222.15	–
17	28.20	18.15	87.00	69.75	11.50	2.82	–	66.50	–	–	283.92	–
18	28.60	18.18	118.15	68.00	74.00	2.97	–	17.00	–	–	330.80	40
	179.60	128.53	556.65	373.50	249.00	15.[illegible]	–	232.50	–	–	2040.58	[illegible]
19	25.10	16.55	91.00	76.50	90.50	2.67	–	–	–	–	302.32	–
20	27.40	17.65	94.00	67.75	93.50	2.90	–	–	–	–	303.20	–
21	25.30	18.00	73.80	78.00	127.00	2.49	–	8.00	–	–	337.59	–
22	18.60	16.10	52.30	–	26.50	1.86	–	72.50	–	–	250.36	–
23	24.60	18.10	92.00	–	5.50	2.46	–	64.50	–	–	240.16	–
24	24.60	20.25	56.50	67.00	137.50	2.46	–	–	–	–	320.81	–
25	24.90	20.90	67.00	74.00	132.00	2.49	–	–	–	–	321.49	–
	120.50	127.15	527.20	363.25	612.50	17.33	–	145.00	–	–	2075.93	–
	696.02	512.70	1876.56	1728.00	1939.25	61.26		759.50			18050.29	190

SA 068242

[redacted]

Total	(4) Titanium	Zealex	Alpha-Size	Unitane	Biocide	PAPERAD
27610	—	—	—	—	—	—
19991	—	—	—	3300	—	—
21637	—	—	—	1050	—	—
18899	—	—	—	—	—	—
22873	—	—	—	—	—	—
31522	—	—	—	—	—	—
32259	—	—	—	—	—	—
74791	—	—	—	43[illegible]	—	—
28805	—	—	—	—	—	—
36734	—	—	—	—	—	—
30100	—	—	—	—	—	—
23733	—	—	—	—	—	18 00
25947	—	—	—	—	—	—
35424	—	—	—	—	—	—
37894	—	—	—	—	—	—
2185 87	—	—	—	—	—	18 00
318 32	—	—	—	—	—	—
296 77	67 50	—	—	—	—	32 50
384 52	118 50	—	—	—	—	80 00
304 00	—	—	—	—	—	—
222 15	—	—	—	—	—	—
283 92	—	—	—	—	—	—
330 90	400	—	—	—	—	—
2040 58	190[illegible]0	—	—	—	—	112 50
302 32	—	—	—	—	—	—
303 20	—	—	—	—	—	—
337 59	—	5 00	—	—	—	—
250 36	—	62 50	—	—	—	—
240.16	—	33 00	—	—	—	—
320 81	—	12 50	—	—	—	—
321 49	—	—	—	—	—	—
2075 93	—	123 00	—	—	—	—
2050 29	190 00	112 00		42 50		130 50

SA 068243

Jack Shockley
No R+D Trials

Nov. 1979 x3.89 3.98 x8.09 Blade Coater Chemicals x10 x7.27 x4.37

DATE	LATEX 673 gal.	Defoamer # D7-122	Stearate DC-111 gal.	Kelgin HV #	TSPP #	CLAY gal H.T. WAX	gal Ammonia	Uvitex	Camil # Wite	LATEX 6107 gal.	PG-208	74-B Pencore
10-29 79	6 45	28	44	100	68	16 65	39	—	900	—	1500	—
30	7 45	32	44	75	51	18 35	43	—	1500	—	2500	—
31	7 36	14	34	57	56	21 10	21	1 02	—	—	1200	—
11-1 79	6 51	28	30	45	58	28 13	34	34	100	—	2000	—
3	2 20	16	20	30	4	4 69	8	68	50	—	—	—
4	10 85	20	50	75	80	31 25	30	1 70	—	—	—	—
5	6 51	12	30	45	48	18 75	18	1 02	—	—	1200	—
6	10 85	20	50	75	80	31 25	30	1 70	—	—	—	—
7	8 68	16	40	60	64	25 00	24	1 36	—	—	—	—
8	8 68	16	40	60	64	25 00	24	1 36	—	—	—	—
9	8 68	16	40	60	64	25 00	24	1 36	—	—	—	—
10	4 34	8	20	30	32	12 50	12	68	—	—	—	—
12	8 68	16	40	60	64	25 00	24	1 36	—	—	—	—
13	8 68	16	40	60	64	25 00	24	1 36	—	—	—	—
14	4 34	40	20	30	32	12 94	12	68	—	—	18 00	—
16	8 64	16	40	60	64	25 00	24	1 36	—	—	—	—
17&18	6 51	12	30	46	48	18 75	18	1 02	—	—	—	—
19	8 68	16	40	60	64	25 00	24	1 36	—	—	—	—
20	2 17	4	10	15	16	6 25	6	34	—	—	—	—
21	10 85	20	50	75	80	31 25	30	1 70	—	—	—	—
22	6 51	12	30	45	48	18 75	18	1 02	—	—	—	—
23	10 85	20	50	75	80	31 25	30	1 70	—	—	—	—
24	8 68	16	40	60	64	25 00	24	1 36	—	—	900	—
	173 15	1 14	[illegible]	12 18	12 [illegible]	[illegible]	[illegible] 41	24 48	[illegible]	—	111 [illegible]	—
	673 55		67 31			501 60	39 33					
	689 14											

PG-208	74-B Pencore	Staysize 112#	Clinsize 753	Nopcocide 120	Calgon T #	Glycerine	Nopcosant K gal	Cello-lose	CMC-7L	x227 Scriptset 720 gal	gal 7C-807	x836 239 Atlas
1500	—	—	—	12	3	9	—	—	—	—	—	—
2500	—	—	—	10	5	15	—	—	—	—	—	—
1200	—	—	—	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
1200	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
1800	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—
900	—	—	—	—	—	—	—	—	—	—	—	—
11[illegible]	—	—	—	22	8	24	—	—	—	—	—	—

620 LATEX gal	722 LATEX gal	86325 Berset	Borax #	LV Protein	Sodium Nitrate	Prez 707 gal x10	H.T. Clay Dry	Missippi CLAY	Hyb CLAY	Formula 2036 gal	Ethanol #	Nov. DATE
—	—	—	—	—	—	—	—	—	—	—	—	10-29
—	—	—	—	—	—	—	—	—	—	—	—	30
—	—	—	—	—	2400	—	—	—	—	—	—	31
4 40	—	15	30	6.00	4000	—	—	—	—	—	—	11-1
2 20	—	8	15	3.00	—	—	—	—	—	—	—	2
—	—	—	—	—	—	—	—	—	—	—	—	3
—	—	—	—	—	—	—	—	—	—	—	—	4
—	—	—	—	—	—	—	—	—	—	—	—	5
—	—	—	—	—	—	—	—	—	—	—	—	6
—	—	—	—	—	—	—	—	—	—	—	—	7
—	—	—	—	—	—	—	—	—	—	—	—	8
—	—	—	—	—	—	—	—	—	—	—	—	9
—	—	—	—	—	—	—	—	—	—	—	—	10
—	—	—	—	—	—	—	—	—	—	—	—	12
8 80	—	2	62	—	—	—	—	—	—	—	3 00	13
—	—	—	—	—	—	—	—	—	—	—	—	14
—	—	—	—	—	—	—	—	—	—	—	—	15
—	—	—	—	—	—	—	—	—	—	—	—	16
—	—	—	—	—	—	—	—	—	—	—	—	17
—	—	—	—	—	—	—	—	—	—	—	—	18
—	—	—	—	—	—	—	—	—	—	—	—	19
—	—	—	—	—	—	—	—	—	—	30	—	20
15 40	—	15	107	7 00	6400	—	—	—	—	30	3 00	21
✓		✓	✓	✓	✓						✓	22
6668												23
												24

614995

SA 068246

Nov 1979 Blade Coater Broke

# Kvanol	DATE	Uncoated Broke	Coated Broke	Total	R+D Trial Uncoated	R+D Trial Coated	R+D Trial Total
	10-29	56 00	63 40	119 40			
	30	48 00	61 00	109 00			
	31	41 00	85 70	126 70			
	11-1	47 00	100 00	147 00			
	2				8 00	62 00	70 00
	3				19 00	76 00	95 00
	4	20 50	56 50	77 00			
	5	16 00	55 10	71 10			
	6	33 50	84 00	117 50			
	7	36 00	71 50	107 50			
	8	16 00	28 00	44 00			
	9	8 00	17 50	25 50			
	10	8 00	11 00	19 00			
	12	6 00	34 00	40 00			
3 00	13	8 50	20 00	28 50			
	14	7 00	30 00	37 00			
	15				50 00	66 00	116 00
	16				37 50	60 50	98 00
	17	8 00	15 50	23 50			
	18	23 00	29 00	52 00			
	19	37 00	52 50	89 50			
	20	9 60	9 55	19 15			
3 00	21	37 50	92 65	130 15			
✓	22	15 90	46 05	61 95			
	23	18 20	35 50	53 70			
	24	51 15	70 85	122 00			
		551 85	1069 30	1621 15	114 50	264 50	379 00

SA 068247

APRIL MILL "C" DAILY CHEMICALS

DATE	Alum	3000# BT. CLAY	GAL. 1 & 2 SIZE	100# 675 CLINTON	ANSILEY	ZEALEY	TITE	100B 112 STAYSIZE	DF1 ACTR	70AM	CP7 SCPOR AN	PAR AMEL	NALC
APRIL 3	650	270 00			48 00		113 00			15	200		/
4	750	300 00			51 00		115 50			15	150		/
5	1450	270 00			41 50		93 00				150		
6	950	360 00			51 00		113 00			15	200		/
7	1300	210 00			61 50		133 00			15	50		/
10	3050	120 00			16 75		36 25				500	35200	/
11	750	150 00			19 50		42 25	300		15	450	10500	/
12	600	240 00			21 00		45 50			15	500		/
13	700	210 00			18 75		49 25			15	200		/
14	1100	150 00			13 50		29 00			15	150	146 00	/
15	600	120 00			11 75		24 25				200	32600	/
16	750	180 00			10 00		24 25			15	200	30960	
17	600	180 00			28 50		66 50			15	200	30500	/
18	650	240 00			33 00		84 00			15	150	2500	/
19	750	90 00	230		43 50		101 50			15	250		/
20	600	120 00			60 00		137 50			15	200		
21	600	120 00			54 00		126 00			15	200		/
22	450	210 00			11 50		24 50			15	100		/
24	950	240 00			30 00		70 00			15	350		/
25	400	300 00			33 00		77 00			15	200		/
26	800	270 00			39 00		94 00			15	50		/
27	600	330 00			39 50		79 50			15	100		/
28	550	270 00			44 75		86 50				150		/
29	1450	270 00			23 25		55 50			15	300		/
	20050	4950 00	230		804 25		1880 75	300		300	52 00	1568 60	2

SA 068249

R AMEL	#680 100 B NALCO	STAYYA J	B-64 NO RETN.	ALUMON	100 B CLINTON 753	Sodium N. TRATE
	112	91 00		2		
	120	91 00		2		
	94	104 00		2		
	100	117 00		3		
	124	65 00		2		
5200	112	93 00		2		
'500	114	55 00		3		24 00
	132	117 00		2		
	124	130 00		3		
'6 00	128	78 00		5		
16 00	160	39 00		3		
19 60		39 00		3		
2500	136	26 00		2		
3500	136	130 00		2		
	114	117 00		3		
		130 00		2		
	124	117 00		2		
	147	130 00		1		
	144	182 00		4	12 00	
	130	117 00		1		
	112	91 00		4		
	116	104 00		2		
	100	78 00		2		
	132	104 00		2		
:8 60	27 11	2345 00		59	12 00	24 00

APRIL Mill D Daily Chemical Report

DATE	Alum	2404 1596 Size	Clay	CP-7 Sophram	675 Clinton	J.T.E	7.2/9AL NALCO	100 B 3/4 STAYSIZE	#680 NALCO	Clay	Cowatte	Sodium Alum.
APRIL 3		360		4	8000	10500	15					
4		240		4	6400	10000	6					4
5		360		4	4800	11000	12					
6		360		4	4800	10000	12					
7		360		4	1600	9450	15				9	1
10		360		6	12800	7400						2
11		360		2	8000							
12		240		4	11200	11250	1					2
13		360		4	14400	13050						1
14		360		4	14400	10700	1					1
15		360		4	8000	9100						
16		360		4	6400	10700	33				6	1
17		360		6	6400	9500	30				7	1.
18		360		4	9600	12150	21				9	1
19		220		2	9600	12900	24					1
20		360		4	9600	12250	1				7	1
21		360		2	6400	10250	45				5	1
22		360		2	6400	6050						
24		480			17600	11000	28					
25		240		4	9600	10500	1					
26		360		4	9600	10000	12					
27		120			6400	10000	12					
28		240		2	6400	10500	15					
29		240		2	6400	10500	15					
		7780		80	204800	238750	299				43	17

SA 068251

APRIL

MILE BRYANT COATING.

DATE	HTCLAY	CASCIN	CALCARB	TANK HTCLAY	COM. WHITE LATEX	#630	TSPP	FORMALDESAIT HYDE	SO. N. TE.	PROCOTE PROTEIN	BORAX	CONST SOD
APR. 1-5		23 10		550 00	389		135	550	55 00	64 50	325	
6-7		12 10		325 00	140	1200	152	5 20	50 00	43 00	200	
10-12		13 10		525 00	276		1 40	9 80	45 00	63 00	315	
13-16		31 90		900 00	370		200	12 80	25 00	87 00	470	
17-18		18 70		425 00	230		139	10 00	55 00	51 00	255	
21-24		23 10		600 00	263		130	5 50		63 00	320	
25-29				700 00			670		126 00	103 50	725	
		122 00		4025 00	1668	1200	1566	48 80	356 00	475 00	26 10	

SA 068252

...ey	Coustic Soda	1407 Napco	#636 Ultra Latey Tank Blue		Red Byp	Drums Latey 636	Ammonia
325	100	550	4496			3000	440
200		370	6600	20	1	2400	110
15		99	7800			4800	550
470						16800	838
355						10200	405
350	200					12600	440
725			7920			13720	
610	300	949	26816	20	1	63520	2783

SA 068253

April

BLADE COATER

DATE	(Lig) NT Clay	Ammonia	DC-111 NAPCO	DF-122 NAPCO	TSPP	Unitex	H.V. Kelgin	#673 Latex	Com White	Penford Gum 200	Penford Gum 280	CMC
April 3	2500	25	40	16	83	34	60	868	8050	700	100	
5	1880	24	32	16	68		100	660				
7	1880	24	32	16	68		100	660				
10	2306	39	47	28	68		100	915	1650		450.	
11	3285	36	52	24	102		130	1146				
4	1565	18	26	12	50		65	547				
6	1410	18	24	12	51		75	495				
12	3551	45	65		80	102	75	1340	1650		450	
13	2500	24	40	16	68		60	868				
14	3125	30	50	20	80	55	75	1085				
17	2500	24	40	16	64	85	60	868				
18	3125	30	50	20	80	170	75	1085				
19	2500	24	40	16	64	136	60	868				
20	2500	24	40	16	64	102	60	868				
21	3125	30	50	20	80	170	75	1085				
22	3125	30	50	20	80	170	75	1085				
23	2500	24	40	16	64	136	60	868				
24	2500	24	40	16	64	136	60	868				
25	2669	30	44	20	83	68	105	929				
26	1419	24	30	18	66	–	75	495				
27	1095	20	18	16	52	34	–	–				
28	1095	20	18	16	52	34	–	–				
	52155	587	868	370	1531	1432	1545	17603	11350	700	1000	
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

SA 068254

INFORD IM 280	CMC 7L	#201 NAICO	239-1 ATLAS	CELLOSIZE	LATEX 6107	NAPCO K	720 SCRIPTSET	STAYSIZE
100			48	50				
450		40			165	3		
450		45	12		385	3		
							45	900
							60	1200
							60	1200
1000		85	60	50	550	6	165	3300

SA 068255

APRIL
56

PULP USED IN HYDROPULPER

DATE	TOTAL	PRINCE ALBERT	BRUNSWICK	F.B. CELGAR	PRINCE GEO.	Eddy	NAHEOLA	MARATHON	Dryden	Semi-BL Dryden	CRESTBROOK
APRIL 3	1004 93	465 00	396 88	58 63	84 42						
4	1296 06		487 08	432 90	196 98	179 10					
5	1105 90		388 93	456 95		260 02					
6	1129 52		338 25	456 95		334 32					
7	1204 35		63 14	466 57		250 74	423 90				
	5740 76	465 00	1674 28	1872 00	281 40	1024 18	423 90				
TONS	287	23	84	94	14	51	21				
10	1561 01			726 31				834 70			
11	990 44			461 76			508 68				
12	867 93			288 60			579 33				
13	1071 30			173 16			640 56		257 58		
14	1260 53						131 88	564 65		564 00	
15	1670 82			129 87				1202 95		338 00	
16	1471 16		4 51	216 45				589 20		141 00	520 00
	8873 19		4 51	1996 15			1860 45	3191 50	257 58	1043 00	520 00
TONS	444		—	100			93	160	13	52	26
17	1283 40		67 65	360 75				491 00			364 00
18	1149 76	150 00	81 18	72 15			494 55	88 38			263 50
19	1238 12	730 00	437 47				70 65				
20	1243 04	365 00	324 72						553 32		
21	1317 16	230 00	405 90					328 97	352 29		
22	1054 89	60 00	906 51					88 38			
	7286 37	1535 00	2223 43	432 90			565 20	996 73	905 61	—	627 50
TONS	364	77	111	22			28	50	45	—	31
24	1393 97	250 00	775 72					368 25			
25	1134 52	330 00	451 00					353 52			
26	1121 00	75 00	324 72			338 30		382 98			
27	1180 88		356 29			137 44		687 15			
28	1132 01		297 66			133 62		700 73			
29	1046 64		248 05					798 59			
	28909 34	2655 00	6355 66	4301 05	281 40	1633 54	2841 55	7479 45	1163 1[illegible]	1043 00	1147 50
	7009 02	655 00	2953 44			609 36		3291 22			
TON	350	33	123			30		164			

SA 068256

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PulP USEd IN HydroPulPER

DATE	TOTALS	Brunswick	Dryden	Prince A/B.	Prince Geo.	Crestbrook	Eddy	Nakola	S.W. Allied	Palatka
APRIL 3	206796	86592	120204							
4	163902	29766	80136	54000						
5	154140	40590	71550	42000						
6	163876	59532	34344	70000						
7	111024	37884		45000	28140					
[illegible]	799738	254364	306234	211000	28140					
TONS	400	127	153	106	14					
10	144480	43296			45024	56160				
11	179364	92004				87360				
12	195462					31200	59700	104562		
13	165534						83580	81954		
14	154272						52536	101736		
15	147018				54000		16716	76302		
16	141966			12000		18720	40596	70650		
TONS	1128096	135300	—	12000	99024	193440	253138	435204		
	564	68		6	50	97	127	218		
17	156876					43680	45372	67824		
18	150512					31200	47760	67824	3728	
19	153768					37440	47760	56520	12048	
20	157716					31200	54924	71592		
21	84472					9360	29452	24492		21168
22	141091					48880	16716	35796		39699
	844435	—		—	—	201760	241984	324048	15776	60867
TONS	422					101	121	162	8	30
24	167375	36080				40560	31044	30144		29547
25	94527					46800	35820			11907
26	117058	39688				43680	31044			2646
27	136274	55460				59280	4776			16758
28	152475	59290				82160				11025
29	125758	39688				72840				13230
	093467	230206				345840	102684	30144		85213
TON	392	215				193	51	15		43
	3565836	619870	306234	223000	1271164	740520	597796	789396	15776	146080

5A 068257

ARRIC

5+6

CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEY	ZEALEY	TITE	NALCO
APRIL 3	9 80	9 60	94 50	48 00	—	50 00	112
4	10 50	10 31	99 75	51 00	—	115 50	120
5	8 23	8 09	67 50	42 00		93 00	88
6	8 75	9 38	96 00	51 00	—	111 00	100
7	10 85	11 63	94 50	61 50	—	133 00	124
	48 13	49 01	452 25	253 50	—	502 50	544
10	9 63	7 56	—	13 75		33 75	110
11	9 81	6 17	42 00	19 50	—	42 25	108
12	11 55	6 53	78 00	21 00	—	45 50	132
13	10 68	6 27	73 50	18 00	—	38 25	122
14	11 20	8 53	31 50	13 50	—	27 00	119
15	16 80	13 38	25 50	22 50	—	22 50	192
16	12 78	9 28	8 25	11 50	—	27 75	146
	82 45	124 72	258 75	119 75		237 00	929
17	11 73	9 06	—	27 00		63 00	134
18	15 75	11 03	51 75	66 00	—	159 50	180
19	13 48	11 54	44 63	73 50	—	171 50	154
20	14 00	11 50	43 20	90 00		207 50	160
21	14 35	10 63	40 05	80 80	—	196 00	164
22	4 55	2 57	16 88	10 50	—	24 50	114
	73 86	56 33	196 51	347 80	—	822 00	906
24	11 20	6 50	58 50	18 00		42 00	128
25	10 68	9 27	67 50	30 00	—	71 50	122
26	8 90	10 00	67 50	39 00	—	94 00	112
27	9 20	10 38	55 25	39 50	—	79 50	116
28	8 45	8 43	104 25	44 75	—	86 50	100
29	9 63	7 99	155 25	23 25		53 00	110
	58 06	52 57	508 25	194 50	—	426 50	688
	202 50	[illegible]263	1415 [illegible]6	915 55	—	192 00	3067

SA 068258

APRIL

7, 8, 9

CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEX	ZEOLEX	TITE	NALCO
APRIL 3	22 50	17 55	97 50	45 50	—	105 50	2 25
4	18 00	15 30	53 25	48 00	—	135 50	1 05
5	20 10	15 05	63 75	35 00	—	37 75	2 01
6	23 40	17 70	91 50	37 00	—	104 50	2 31
7	19 20	14 58	39 50	38 75	—	95 50	2 01
	103 20	80 18	345 50	204 25	—	478 75	9 63
10	22 80	15 65	99 75	35 00		69 00	2 28
11	23 30	20 13	809 88	24 50		70 50	2 48
12	24 90	24 20	106 50	50 00		112 50	2 49
13	23 00	18 30	90 39	57 00		127 75	2 43
14	22 70	18 50	79 50	58 00		121 00	2 70
15	21 70	15 98	106 35	43 00		111 50	2 46
16	18 20	12 85	81 75	47 50		107 00	2 04
	156 60	125 61	1374 12	315 00		719 25	16 88
17	16 60	11 40	90 75	38 75		92 00	1 83
18	20 75	17 35	69 25	53 00		110 00	2 04
19	21 45	15 58	76 88	61 75		120 75	1 88
20	22 40	15 29	111 75	41 25		113 50	2 39
21	18 40	18 30	117 50	38 50		102 50	2 07
22	26 35	19 95	125 00	36 00		102 50	2 66
	125 95	97 87	591 13	269 25		641 25	12 87
24	22 50	19 45	71 25	47 00		149 00	2 55
25	20 10	15 33	53 25	32 50		103 00	2 01
26	18 45	15 93	21 00	32 00		104 50	1 89
27	17 10	10 49	83 63	29 78		94 00	1 69
28	17 70	9 85	108 00	30 50		100 00	1 77
29	18 45	9 41	96 38	20 75		65 00	1 84
	114 30	80 46	433 51	192 53		615 50	11 75
	500 05	4 12	744 26	981 03		2454 75	51 13

SA 068259

MAY

MILL "C" CHEMICALS

DATE	Alum	Clay (3000# BT. CAL x 22 10% 625)	Size	Clinton	Ansley Zeolex	Tite	100# B Stays	DFI Size	CP-7 Actr	Frm	Sep	Mran	Por Anol	NBIA
MAY 5	1000	31000	2760		700	1400			15		100		15500	
6	550	24600	21 16		1575	3550			15		150		239 00	
7	750	24000	21 16		1500	3000			15		150		255 00	
8	650	3000	—		1300	2550			15		150		18100	
9	350	24000	21 16		2750	5250			15		100			
10	500	24000			2900	5800			15		150			
11	700	21000			4200	8400			15		200			
12	500	27000	21 16		3450	6900			15		150			
13	500	18000			3200	6400			15		200			
14	550	21000			2800	5600			15		150			
15	700	21000	21 16		2000	4000			15		150		5000	
16	850	6000	21 16		3200	6400			15				27300	
17	700	3000	21 16		2800	5600			15		100		274 00	
18	900	6000	21 16		2800	5600			15		100		29400	
19	550	6000	21 16		3200	6400			15		50		27800	
20	700	27000	2116		2800	6800			15		150			
21	500	240 00			2450	5500					50			
22	750	36000	2760		1750	3500			15		100			
23	550	42000	—		1750	4050			15		100			
24	700	27000	2944		3225	7975			15		100			
25	900	6000	2944		1800				15		200		31 500	
26	700	18000				2000			15		100		33 500	
	14650	43500	32668		52150	124665			315		2700		263400	
TOTAL LBS	14650	43500	39288	179200	52150	319715			315		2784		263100	

OR AREL	NEICO	680100# S. Stay Zinc	Alum-ow	100#B753 Clinton	Stay Size	Nitrate Sodium (Bags)	NALCO 7/M	Clay Count
15500	88	7900	2		1100			
22900	138	6500	2					
35500	152	5200	2					
18100	152	10400	3					
	152	13000	1					
	128	13000	2					
	112	5700	3	2000				
	130	10100	2					
	148	14000	2					
	140	14200	2					
5500	128		3		14000			
27300	148	5000	4			40		
27400	124	2000	3					
28900	148	4000	4					
27800	136	2000	2					
	124	12100	3					
	100	6000	2					
		12200	3					
	130	12200	3					
	110	6000	5					
31500	156		4					
33500	136	6000	3					
63400	2780	167500	60	2000	14000	40		
63400	2780	167500	72	2000	1400	40	156	62

MAY MILL "D" CHEMICAL REPORT

DATE	ALUM	SIZE	CLAY	CP 7 SEPARAN	675 CLINTON	TITE	7.2 GAL NALCO 7/M	100 HB STAYSIZE	#680 NALCO	CLAY COUNTER	SODIUM ALUM
May 6		360		4	9600	7200	9			9	1
7		360		6	6400	5600	18			11	1
8		360		4	8000	5000	18			11	1
9		360		4	9600	7500	9			9	1
10		360		2	12800	6000	6			8	1
11		360		4	11200	12700	6			6	1
12		240		2	11200	12200	6			6	1
13		360		2	3200	10000	6				2
14		480		6	6400	10000	1				
15		240			9600	11000	12				
16		360		4	9600	10000					
17		360		6	14400	11500	15				
18		360		4	11200	10000					
19		240		4	11200	11500	28				
20		360		6	9600	10500	18				
22		360		6	4800	11150					1
21		240		4	6400	12950	—				
23		360		4	6400	10750	—				—
24		240		4	9600	11000					1
25		240		6	6400	—	1				1
26		120		2	1600	8500	3				
		6720		84	179200	195050	156			62	12

SA 068262

MAY, 1978

Mill "E" Bryant Coating

DATE	GAL. Ammonia	CASE IN	SODA Caustic	TANK H.T. Clay	Com. WHITE	TANK LATEX 636	TSPP	Formaldehyde Hyde	SALT Sodium T	PRE-COTE PROTEIN	BORAX
MAY 1-10	400	1760		45000	238	9600	121	400	5000	4800	240
11-13	504	2420	200	57500	288	13200	200	550		6600	330
15-17	400	2200	100	104979	250	5000	138	500	8500	2750	300
18-20	378	1980		45000	225	11400	117	450	4000	5400	285
22-24	462	2530		56500	276	13200	143	575	3000	6900	345
25-26	143			27500		7800	8	1005	10700	3900	300
	2287	10890	300	335479	1277	60200	127	3480	31200	30350	1800

UNT. B

SA 068263

FORAY	UNT.	BLUE	Red	GYP	LATEX 620	STALEY STA COTE	(636 DR) LATEY
240		20					
330							
300					40 50	288 00	
285		20					
345							12 00
300							
1800		40			40 50	286 00	12 00

SA 068264

MAY BLADE COATER

DATE	GALS. HT. CLAY	AMMONIA	DC 111 NAPCO	DF 122 NAPCO	TSPP	UNITEX	KU. KEIS. IN LATEX 673		CAM WHITE	PENFORD GUM 200	PENFORD GUM 280	2 NALCO
MAY 6	7 80	30	30	24				5 10	33 00		9 00	
7	7 80	30	30	24				5 10	33 00		9 00	
8	40 10	46	70	32	96	204		14 72	11 00		3 00	
9	25 00	24		16	64	136	60	8 68				
10	—	30	50	20	80	134	75	10 85				
11	25 00	40	40	16	64		60	8 68				
12-14	46 87	85	105	42	80	102	75	20 20	60 50			
15	31 25	30	50	20	80	170	75	10 85				
16	25 00	24	40	16	64	136	60	8 68				
17	12 50	12	20	8	32	68	30	4 34				
18	18 75	18	30	12	48	102	45	6 51				
19	37 50	36	60	24	96	204	90	13 02				
22	18 75	18	30	12	48	102	45	6 51				
23	32 90	47	68	38	64	136	60	13 43	30 50			
24	12 50	12	20	8	32	34	30	4 34				
25	18 75	18	30	12	48	102	45	6 51				
26	25 00	24	40	16	64	136	60	8 68				
TOTAL	385 47	524	713	340	960	1766	810	156 20	168 00	—	21 00	
	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

SA 068265

nFORD	201		GAL.	720				
m 280	NALCO	CMC 7-6	LATEX 6109	SCRIPSET	STAY SIZE	PC 807	NAPCO	K
900		90	330					6
900	12	90	330					6
300		30	110					2
								75
	22							
		165						
	24							
2100	58	375	770	—	—	—		89
	✓	✓	✓	—	—	—		✓

SA 068266

5,6

PULP USED IN HYDROPULPER

DATE	TOTAL	MARATHON	BRUNSWICK	Semi-BL DRYDEN	BL CELGAR	PRINCE GEO.	WESTVACO	PRINC ALBERT	TRAHEOLA	A.T. H.W.	ATSW
MAY 5	1039 94	849 68	190 26								
6	1511 13	1259 70	194 79	56 64							
7	1773 80	1502 00	271 80								
TOTALS	4324 87	3611 38	656 85	56 64							
TONS	216	181	33	3							
8	1526 62	1091 74	434 88								
9	1239 24	276 64	829 04		133 56						
10	1187 03	256 88	720 27		209 88						
11	945 93	59 28	163 08	543 78	179 79						
12	979 08		271 80	498 54	208 74						
13	1069 05		693 09	186 03	189 93						
14	1159 29		638 73	257 58	262 98						
TOTALS	8106 24	1684 54	3750 89	1485 93	1184 88						
1	405	84	188	74	59						
15	879 72	74 10	516 42	143 10	146 10						
16	1557 68	1068 80			233 76	255 12					
17	1418 20	988 00			219 15	211 05					
18	1831 53	1185 60		214 65	248 37	182 91					
19	1016 13	494 00		200 34	204 54	117 25					
20	1177 75		389 58		409 08		379 09				
21	1009 44		434 88		219 15		126 36	229 05			
	8890 45	3800 50	1340 88	558 09	1680 15	766 33	505 45	229 05			
TONS	444	191	67	28	24	38	25	11			
22	1362 54		566 25		233 76			213 78	348 75		
23	1195 50				292 20			91 62	782 70	28 98	
24	1092 98	494 00						366 48	232 50		
25	1556 88	1136 20		37 76				346 12			36 80
26	1025 12	296 40		133 56				142 52			452 64
	6233 02	1926 60	566 25	171 32	525 96	—	—	1160 52	1363 95	28 98	489 44
TONS	312	93	28	9	26	—	—	58	68	1	24

SA 068267

7, 8, 9

Pulp used in Hydro Pulper

DATE	TOTAL	WESTVACO	PALATKA	CRESTBROOK	NAHEOLA	Brunswick	AHW	Eddy	Geo. Prince	Celgar	MARATHON	DRYD
MAY 5	83732	46656	30812	6264								
6	146972	33696	54932	6264	52080							
7	163944	76464	15948		33480	38052						
TOTAL	394648	156816	101692	12528	85560	38052						
TONS	197	78	51	6	43	19						
8	173412	112428		21924	39060							
9	213541	20088		95005	98448							
10	166590			52200	114390							
11	121088			43848	69750		7490					
12	114199			37584	63240		13375					
13	128844			18792	66960		33660	9432				
14	140012				76260		19640	4716	39396			
TOTALS	1057686	132516	—	269353	528108	—	74165	14148	39396			
TONS	529	66	—	135	264	—	37	7	20			
15	138266				75330		23540		39396			
16	141622				70680		20330		50652			
17	155622				29760	47112	22470		56280			
18	155596					77916	21400		56280			
19	164320	20736				76104	29960		37520			
20	183348	76464				19932	29960	15720	41272			
21	128130	46008					13748	12576		36038	19760	
	1066904	143208			175770	221064	161408	28296	281400	36038	19760	
TONS	534	72			88	110	81	14	141	18	10	
22	130550	53136					19640			36038	21736	
23	157666	68688								45778	35568	76.
24	148950	46008								55518	47424	
25	150454	54432					9820			51622	34580	
26	138964	54432					4910			63814	15808	
	726584	276696			—		34370	—	—	252770	155116	76.
	363	138					17			126	78	4
	6001320	759781	101692	281881	925833	890603	269943	42444	397429	627907	1278178	2348

SA 068268

MARATHON DRYDEN PRINCE ALB ATHW ATSW

3 197 60
7 197 60
10
8 217 36
7 355 68 76 32
7 474 24
2 345 80
1 158 08

1 1551 16 76 32
78 4
7 1278 178 2348 30 1389 57 28 98 489 44

SA 068269

CHEMICALS USED IN BEATERS

DATE	Alum	SIZE	CLAY	ANSILEY ZEALEY	TITE	NALCO
MAY 5	770	550	1050	700	1400	88
6	1243	869	1950	1863	3925	142
7	1330	950	5625	1500	3000	152
TOTAL	3343	2369	8625	4063	8325	382
8	1330	865	6750	1300	2550	144
9	1330	705	13525	2750	5250	122
10	1120	665	10200	2900	5800	128
11	980	700	4500	4200	8400	102
12	1138	711	6788	3450	6900	130
13	1295	735	10875	3200	6400	148
14	1225	1528	10500	2800	5600	140
TOTAL	8418	5909	65138	20600	40900	914
15	1120	646	10125	2000	4000	128
16	1295	1325	—	3200	6400	148
17	1085	988	—	2800	5600	124
18	1295	1388	—	2800	5600	148
19	1190	1275	—	3200	6400	136
20	1085	622	1225	2800	6800	124
21	875	493	6375	2450	5250	100
TOTAL	7945	6737	17725	19250	40550	908
22	1190	588	10125	1750	3500	136
23	1138	1396	7650	1750	4050	130
24	963	558	6750	3225	8025	110
25	1895	1070	225	1800	4850	160
26	1323	640	7688	—	375	134
	6509	4252	32438	8525	20800	670

SA 068270

7,8,9

CHEMICALS USED IN BEATER

DATE	Alum	SIZE	CLAY	ANSILEY ZEALEY	TITE	NALCO CAMELWHITE	
MAY 5	1800	1170	5400	3600	9900	162	
6	2243	2718	2583	2800	7600	269	
7	2350	2198	2017.5	1900	5750	285	
TOTAL	6393	6086	51388	8300	33250	716	
8	2165	1835	1800	2200	6950	255	
9	2215	1643	1575	3650	7150	261	
10	2140	1795	14325	4250	10900	228	
11	1745	1438	9675	4300	12400	192	
12	1820	1577	11325	4650	12900	195	
13	1860	1680	10725	3500	6850	186	
14	2145	1870	10800	3800	9100	219	
TOTAL	13990	11838	90600	26250	66850	1536	
15	2160	2033	8925	6100	12200	231	
16	2410	1955	4125	4750	10150	237	
17	2175	1955	5175	3750	10100	231	
18	2445	2158	5700	3650	9590	243	
19	2385	1830	9450	2000	9400	225	
20	2335	1785	13050	2000	8800	219	
21	2080	1480	15875	1050	9750	201	
TOTAL	15990	13196	57300	23300	69990	1587	
22	2025	1365	13613	2950	10875	203	
23	2220	1788	13875	3000	9300	226	
24	1890	1430	6225	5650	12600	189	
25	2040	1548	9075	4700	10700	204	
26	1470	1109	4650	2700	2100	154	2400
	9645	7240	47438	19000	45525	976	2400

SA 068271

SUNE, 1978

MILL 'C' CHEMICALS

DATE	Alum	3000# BT CLAY	GAL 9x2 SIZE	100# 675 CLINTON	ANSILEY ZEALEY	TITE	100# B DFI STAYSIZE	CP 7 ACTRA-FORM	SEPARANT	PARAMEL	6 NE/C
5 30	800	30000	2944		1900	3400		15	150	7500	
31	600	9000			2800	5600		15	150	31400	
SUNE 1	700	9000	2944		2800	5600		15	100	32300	
2	800	18000	2944		5250	9950		15	50	2000	
3	650	21000	2944		5150	10100		15	100		
4	550	27000	2944		3900	6700		20	150		
5	550	21000	2944		3500	5700		20	100		
6	550	15000	2944		3900	6700		20	100	9800	
7	750	9000	2944		3200	6800		20	100	26400	
8	650	6000	2944		2600	5050		20	150	26600	
9	700	18000	2944		2200	4400		20	100	26500	
12	900	57000	2944		3700	6950		20			
13	550	24000	2944		2850	6700		20	150		
14	600	18000	2944		2650	5250		20	150	1000	
15	850	24000	2944		2350	5200		20	150		
16	550	36000	2944		750	1500		20	200		
17	800	30000			1200	2400		20	200		
18	700	24000			2000	3750		20	200		
19	600	18000	2116		1500	3000		20	150	28400	
20	1050	12000	2116		1500	3000		20		34700	
21	1650	15000	2116		2450	4700		20	150	34000	
22	600	30000	2392		3425	10450		20	150	730	
23	850	48000	2116		1125	5250		20	150		
24	600	39000	2944		2400	7800		20	325		
25	650	30000	2116		3575	7000		20	250		
26	200	21000			1100	2750		20	300	20000	
27	550	27000	2944		1600	3625		20	150	15800	
28	450	30000			3075	6200		20	300		
29	700	24000	2944		3075	7000		20	200		
30	500	36000			2925	6425		20			
TOTAL	19650	126000	65964		80450	168150		515	4425	241 30	

SA 068272

	680	5		253	100 LB BAS NITRATE	120
...AMEL	Welco	STAYZ ME	Alum-ON	Clinton STAYSIZE	Sodium	STA-COTE
7500	126	11400	3			1800
31400	128	3100	2		4000	
32300	132		3		2000	
2000	108	6000	3			
		8000	2			
	116	8000	2			
	112	6000	2			
9800		6000	2			
26400		6000	3			
26600	168	4000	2			
26500	144	3000	3			
	160	14200	3			
	136	8000	2			
1000	148	6000	1			
	126	12000	3			
	132	10000	2			
		8000	3			
	128	6000	3			
3400	164	6000	2			
4700	180	4000	3			
4000	188	4000	2			
730	146	8000	2			
	180	10000	3			
	130	10000	2			
	140	8000	2			
00 00	100	2000	—			
58 00	138	6000	1			
		6800				
	132	8000	2			
	120	4000	1			
11 30	3532	202500	64		6000	1800

SA 068273

SUNE, 1978 MILL "D" CHEMICALS

DATE	Alum	SIZE	CLAY	CP-7 SEPARAN	675 CLINTON	TITE	7.2 GAL NALCO 7/10	100#B STAYSIZE	680 NALCO	CLAY	COUNTER SOD	Alum
5-30		360		6	20800	5200	1					1
31		120		6	9600	12300	18					1
SUNE 1		360		4	12800	15300	6				7	1
2		360		6	4800	8550	21				6	1
5		360		4	8000	10000						
6		360		4	4800	7000						
7		360		4	17600	11000						
8		360		6	9600	8500	27					
9		360		4	9600	6750					16	1
12		360		4	17600	14900	24				3	1
13		240		4	11200	7150	15				5	1
14		240		4	11200	9400						
15		240		4	8000	12450						
16		240		4	8000	12450						
17		240		4	8000	12550						
18		240		4	9600	13250					3	1
19		240		6	6400	9700					3	1
20		360		4	8000	9400					4	1
21		120		4	12800	6150	18				6	1
22		360		4	16000	11500	1				6	1
23		360		2	11200	10500	9				5	1
24		360		4	11200	11000	6					
25		240		4	11200	10000	6					
26		360		4	8000	10500	9					
27		240		4	4000	8500	6					
28		240		6	8000	10000	6					
29		240		2	4800	10500	6					
30		240		2	7600		9				4	
		8160		118	280400	2745 00	188				64	12

SA 068274

SUNE 1978 — MILL "E" BRYANT COATING CHEMICALS

DATE	GAL AMMONIA	CASEIN	SODA CAUSTIC	TANK H.T. CLAY	COM WHITE	TANK LATEX 636	TSPP	FORMIKADE Hyde	SALT Sod.	PRO-COTE PROTEIN	BORAY
MAY 29-31	50	2920		67500	351	16200	216	675		8100	405
SUNE 1-2	142	1210		24000	137	6600	77	275		3300	165
5-7	440	1430	100	27500	156	1200	140	550	10000	6600	255
8-9	320			40000	208		112	400	8000	4800	240
12-15	560	2200		70000	364	16800	196	700	6500	8400	420
16-19	420	2310		52500	273	12600	131	525	3300	6300	315
20-23	520	—	50	65000	325	3600	169	650	13000	7800	390
26-29		4200		52500	2625	16640	422	525	3900	12600	167
	2452	14320	150	399000	4434	73640	1463	4300	44700	57900	2457

UNT B

SA 068275

CAY	UNT. BLUE	Red BYP LATEX	620 STANLEY STROTE	(636 DRY) LATEX	Lig. H.T. CLAY	LATEX Dyley	PLUSTAR	DeFoomer	GALS NALCO 178
405									
165									
255	40			9400	27500	1200	7320		
240				5000		2400			
420									
315									
390				1200				104	
167									93
2457	40			15600	27500	3600	7320	104	93

SA 068276

SUNE, 1978

BLADE COATER CHEMICAL

DATE	HT. GALS CLAY	AMMONIA	DC111 NAPCO	DF122 NAPCO	TS-PP	UNITEX	K.V KELGIN	673 LATEX	CAM WHITE	PEN FORD GUM 200	PEN FORD GUM 280	2 NAICO
MAY 30	6 25	26	10	24	66	34	15	217				
31	6 25	6	10	8	40	34	15	217	91 00	800	200	
SUNE 1	18 75	18	30	12	48	102	45	651				
24	29 50	72	80	32	32	68	30	1455	6600		1800	
5	7 67	11	15	6	16	17	15	302	550		150	
6	21 00	42	50	20	32		30	944	3300			
7	17 05	27	15	16	26	—	15	302	650			
8	8 82	24		15					500			
9	14 09	16	20	8	16		15	292	1100			
12	24 43	38	50	20	48		45	991	2200			
13	12 50	12	20	8	32		30	434				
14	12 50	12	20	8	32	68	30	434				
15	12 50	12	20	8	32	68	30	434				
16 19	18 75	18	30	12	48	102	45	651				
20-21	12 50	12	20	8	32	68	30	434				
22	21 02	42	50	16	32	68	30	944	33 00			
23	16 76	27	35	14	32	68	30	689	16 50			
24	9 40	12	16	8	34		50	330				
26	12 50	12	20	8	32	34	30	434				
27-28	25 00	24	40	16	64	102	60	868				
29	—	12	20	8	32	68	30	434				
30	12 50 ✓	12 ✓	20	8 ✓	32 ✓	68	30 ✓	434 ✓				
	314 74	427	591	283	759	969	650	11091	289 50	800	21 50	

SA 068277

en Ford um 280	NAICO 201	CMC 7-6	LATEX 6107	SCRIPSET 720	STAYSIZE	PC 807	NAPCO K	ATLAS 239	Cellogize	
				150	3000	50				
200								10	50	
1800	24	180	660				12			
150	2	10	55				1			
	12	82	330				6			
	2		55				1			
			55				5			
		30					2			
		60	220				4			
	12	90					6			
	6	45								
21.50	58	497	1375	150	3000	50	37	10	50	

SA 068278

5,6
PAGE I

SUNE 1978 PULP USED IN HYDROPULPER

DATE	TOTAL	Semi-Bl Dryden	PRINCE ALB.	CELGAR	MARATHON	AT.S.W.	BRUNSW. CK	PRINCE GEO.	AHW	FORT FRANCIS	NAHEOLA	H/HL
MAY 30	1070 37	37 76	171 85	129 06	441 90	289 80						
31	348 84	—	176 76	172 08	—	—						
SUNE 1	1360 30	—	191 49	186 81	982 00	—						
2	1389 09		220 95	731 34			436 80					
3	1218 51		191 49	617 52			409 50					
4	1248 00		206 22	632 28			409 50					
	6635 11	37 76	1158 76	2469 09	1423 90	289 80	1255 80					
TONS	332	2	58	123	72	15	62					
5	963 54		162 03	487 56			313 95					
6	937 02		206 22	200 76			150 15	379 89				
7	1348 24		250 41	119 50	294 60			683 73				
8	1469 99		363 34		1006 55		100 10					
9	1343 54		314 24		196 40		145 60			687 30		
	6062 33	-	1296 24	807 82	1497 55		709 80	1063 62		687 30		
TONS	303		64	40	75		35	53		34		
12	1622 71		471 36				464 10			521 40	35 44	130
13	1125 45			286 80			286 65			355 50		
14	1295 21			535 36			623 35					
15	1071 59			229 44			573 30		100 10			
16	1720 36						841 75		341 75			
17	1029 03						523 25		181 90			135
18	1036 84						532 35		165 85			306
	8901 19		471 36	1051 60	—		3844 75		789 60	876 90	35 44	572
TONS	445		24	53	—		192		39	44	2	2
19	1410 33				220 95		232 05					
20	1688 09				1153 85		286 65					
21	1691 41				1202 95		109 20					
22	1738 66		98 20									
23	1773 13	264 32	834 70									
24	1430 75		122 75									
25	1237 48				186 58		459 55					
	10969 95	264 32	1055 65	—	2764 33	—	1087 45	—	—	—	—	—
TOTAL		PAGE 2	PAGE 2	PAGE 2	PAGE 2	289 80	PAGE 2	1063 62	789 60	1564 20	35 44	572

HAULA	ATHW	Eddy	~~[illegible]~~	Grand Prairie	ASW	Dryden F.13
25 44	130 41					
		196 50				
			136 50			
			78 30	90 45		
			354 96		181 90	
	135 24	188 64				
	306 54				32 10	
35 44	572 19	385 14	569 76	90 45	214 00	
2	29	19	28	5	11	
		200 43	756 90			
		247 59				
		149 34				229 92
				1206 00	32 10	402 36
		165 06			149 80	359 25
		589 50				718 50
		471 60				119 75
	—	1823 52	756 90	1206 00	181 90	1829 78
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

5A 068280

7.8.9

SUNE, 1928 Pulp used In Hydropulper

DATE	TOTAL	AHW	Celgar	ASW	WESTVACO	PRINCE ALB.	NAHEOLA	CRESTBROOK	PRINCE GEO.	DRYDEN	ATHW	SUPER
MAY 30	1698 66	481 50	57 36	706 20	453 60	—						
31	1456 22	181 90	172 08	984 40	—	117 84						
SUNE 1	1546 92	181 90	—	716 90	—	648 12						
2	1568 40	190 80				412 44	526 68	438 48				
3	1406 66	203 30					702 24	501 12				
4	1712 28	417 30			129 60		602 58		562 80			
	9389 14	1656 70	229 44	2407 50	583 20	1178 40	1831 50	939 60	562 80			
TONS	470	83	12	120	29	59	92	47	28			
5	1603 14	246 10		524 30	298 08				534 66			
6	1644 68	149 80		984 40		88 38			422 10			
7	2028 20	321 00	143 40	1423 10					140 70			
8	1876 80	246 10	191 20	1251 90					187 60			
9	1704 12	353 10		353 10			997 92					
	8850 04	1316 20	334 60	4536 80	298 08	88 38	997 92	—	1285 06			
TONS	443	66	17	227	15	4	50	—	64			
12	1678 96			64 20			1081 08		131 32	402 36		
13	2089 14						1514 90			238 24	336 00	
14	1500 20	192 60				382 98	646 80			277 82		
15	1974 10	101 00				1011 46	535 92			325 72		
16	1705 12	406 60	57 36			412 44	702 24					126
17	1628 92		172 44	684 80		117 84	92 40			287 40		27
18	1596 16		191 20	791 80						402 36		210
	12172 60	700 20	421 00	1540 80	—	1924 72	4573 34	—	131 32	1933 90	336 00	611
TONS	608	35	21	77		96	228	—	6	97	17	[illegible]
19	1616 34	16 50	57 36	642 00		88 38	346 50			402 36		6[illegible]
20	1871 73	230 05		513 60		873 98	254 10					
21	2554 40	256 80		642 00		78 56	1201 20	375 84				
22	1462 12	214 00					129 36	83 52				
23	1756 32	214 00						814 32				
24	1574 70	342 40	267 68	181 90				709 92				
25	1586 52	192 60	325 04	385 20		274 96						
	12423 13	1466 35	650 08	2364 70	—	1315 88	1931 16	1983 60	—	402 36	—	63
		page 2	page 2	page 2	881 28	page 2	9333 92	page 2	1979 18	2336 26	336 00	674

SA 068281

THW Superior Brunswick Eddy ....

336 00

12648
27404
210 80
336 00 611 32
17 31
6324

103524
728 00
72 80
408 72
6324 183604 408 72

SA 068282

5.6

SUNE

CHEMICALS USED IN BEATERS

CONT

DATE	ALUM	SIZE	CLAY	ANSILEY	ZEALEY	TITE	NALCO	CAMELWH.
MAY 30	1068	688	6450	1800	—	3450		122
31	1545	888	—	2800	—	5600		128
SUNE 1	1590	1788	—	2400		5600		130
2	1035	1010	4275	5250	—	9950		108
3	1005	740	5325	5150	—	13900		165
4	1085	900	8250	3900	—	6700		116
	7328	6014	24300	21300	—	46200		769
5	1040	850	8250	3500		5700		112
6	1060	900	5250	3900	—	6700		112
7	1200	1000	300	2400		3000		128
8	1500	1137	—	2600		5050		168
9	1260	1063	—	2200		4400		144
	6060	4950	13800	14600	—	24950		664
12	1400	940	10500	5100		6900		156
13	1190	718	10200	2850		6700		136
14	1260	818	6750	2600		5200		140
15	1103	709	4725	2350		5200		126
16	1155	520	9300	750		1500		132
17	1035	535	7950	1175		2350		120
18	1135	956	7050	1875		3525		123
	8278	5196	56475	16700		31375		933
19	1765	950	2250	1500		3000		142
20	1575	1150	2250	1500		3000		180
21	1575	1134	1575	2450		3900		184
22	1260	891	10350	3225		10200		144
23	2196	798	14418	1106		5218		179
24	1575	908	11475	2460		7800		180
25	1295	925	5400	3875		7500		148
	11241	6726	47718	16106		40618		1157

5.6 CONT SUNE DATE SUNE

5A 068283

5,6

CONT

CONT

JUNE

DATE	ALUM	SIZE	CLAY	ANSILEY	ZEALEY	TITE	NALCO	CAMEL WH.
JUNE 26	825	625	—	100	—	2750	100	
27	1221	851	1650	1600		3625	136	
28	1165	800	6525	3075		6200	128	
29	1195	825	6825	3075	—	7000	132	
30	1092 ✓	751	6113 ✓	3888 ✓	—	6425	120	
	5548	3852	21113	10738	—	26000	616	

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7, 8. 9

JUNE CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEX	ZEALEX	TITE	NALCO	CAMEL WH
MAY 30	17 10	9 45	138 00	10 00		38 50	1 34	34 50
31	25 10	16 35	168 75	30 00		121 75	2 38	
JUNE 1	24 60	15 75	144 00	43 00		136 00	2 43	
2	20 70	13 40	126 00	36 00		98 50	2 15	
3	25 80	20 86	199 50	33 50		77 95	2 58	
4	24 30	19 45	178 50	31 00		74 00	2 43	
	137 60	95 26	954 25	183 50		546 70	13 31	34 50
5	22 65	17 53	49 88	36 50		93 75	2 43	
6	23 70	19 60	96 25	71 75		113 50	2 25	
7	28 45	25 98	88 25	25 50		85 00	2 79	
8	28 50	20 45	122 25	—		19 00	2 59	
9	32 40	22 45	134 25	26 00		65 00	3 24	
	135 70	106 01	491 38	159 75		376 25	13 30	
12	33 35	21 33	61 50	58 50		140 75	2 33	
13	29 80	15 50	130 75	49 00		65 50	2 97	
14	28 65	16 18	87 00	25 50		91 00	2 90	
15	22 85	16 95	28 50	47 00		123 75	2 31	
16	21 50	15 00	71 25	44 00		131 00	2 22	
17	20 40	13 50	61 50	48 25		145 00	2 04	
18	21 30	14 25	84 00	37 00		134 00	2 13	
	177 85	112 71	524 50	309 25		831 00	16 90	
19	16 95	14 40	58 50	69 00		88 00	1 72	
20	22 50	14 33	75 00	23 00		96 00	2 25	
21	23 60	13 45	126 00	14 00		59 75	2 64	
22	24 80	18 28	118 50	32 50		108 00	2 55	
23	26 45	36 95	103 50	35 50		100 50	2 88	
24	21 70	16 65	87 75	32 30		80 80	2 34	
25	19 75	16 05	83 00	33 50		110 50	2 31	
	155 75	130 11	652 25	239 80		643 55	16 69	

7, 8;

Cont. JUNE

DATE

June

SA 068285

7,8,9

Cont. JUNE, 1978

DATE	Alum	SIZE	CLAY	ANSILEY	ZCALEY	TITE	NALCO	CAMEL WH
June 26	18 85	15 55	54 75	35 50	–	136 25		198
27	17 80	13 85	90 75	35 00		124 50		189
28	16 65	12 40	53 25	31 00		115 00		186
29	15 30	11 10	33 00	22 50		103 00		171
30	13 10 ✓	9 65 ✓	41 25 ✓	15 00 ✓		55 00 ✓		168
	81 70	62 55	273 00	140 00		533 75		912

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2

CONT JUNE 1976 PULP USED IN HYDROPULPER

DATE	TOTAL	Eddy	MARATHON	Dryden	BRUNSWICK	Dryden Semi BC	CC/GAR	PRINCE ALBERT
June 26	1007 96	498 96	509 00					
27	1402 25	282 96	702 13	226 56	191 10			
28	1255 46		137 48		464 10	453 12	200 76	
29	1362 40				364 00	424 80	573 60	
30	934 62				100 10	283 20	129 06	422 26
TOTAL	5963 19	781 92	1348 61	226 56	1119 30	1161 12	903 42	422 26
TONS	298	39	67	11	56	58	45	21
TOTAL		2990 58	7034 39	2056 34	1463 20	8017 10	5231 93	4404 27

GRAND TOTAL 5,6
3853167

1926 TONS

SA 068287

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CON,T JUNE 1978

DATE	TOTAL	PRINCE ALBERT	CELGAR	ASW	AHW	EDDY	CRESTBROOK
JUNE 26	1383 80	628 48	305 92	299 60	149 80		
27	1377 84	535 28	264 76	385 20	192 60		
28	1104 30	274 96	133 84	470 80	224 70		
29	1017 62	196 40	95 60	428 00	203 30	94 32	
30	997 24		133 84	385 20	196 20	31 44	250 56
TOTAL	5880 80	1635 12	933 96	1968 80	966 60	125 76	250 56
TONS	294	82	47	98	48	6	13
TOTAL		6142 50	2569 08	12818 60	6106 05	534 48	3173 76

GRAND TOTAL 7, 8, 9

4872171

2436 ton

Grand total 5, 6, 7, 8, 9

8725338

SA 068288

July 9, 1978

Mill "C" Chemicals

DATE	Alum	3000# BT CAL CLAY	9x2 SIZE	140TH 675 CLINTON	ANSLEY	ZEALEY	T.T.E	100 #.P STAY SIZE	DFI ACTRA-floc	CP 7 SEPARAN	PARMEL
July 5	750	180.00	21 16		1500		27.00		20	250	23100
6	700	300 00	29 44		8900		60 00		20	150	4000
7	700	270 00	—		3350		65 00		20	250	
8	1050	33000	21 16		3350		49 00		20	150	3500
9	650	270 00	21 16		1500		26 00		20	150	33500
10	750	300 00	21 16		1050		19 50		20	100	31000
11	750	7200	21 16		825		28 50		20		25000
12	700	510 00	—		1350		24 00		20	250	
13	600	480 00	21 16		750		16 00		20	150	18300
14	1000	480 00	21 16		700		14 00		20	100	27100
17	1000	180 00	29 44		225		13 00		20		38400
18	500	300 00	29 44		750		20 00		20	100	18700
19	500	300 00	29 44		750		20 00		20	100	18700
20	600	300 00	—		725		33 75		20		
21	200	270 00	21 16		10 25		37 00		20	200	7600
22	500	120 00	29 44		15 00		33 50		20	200	26900
23	1100	390 00	29 44		17 50		75 50		20	200	4500
24	700	30 00			20 00		40 00			200	28600
25	600	210 00			17 50		35 00				22500
26	500	210 00	—		31 00				20	300	31600
27	600	120 00			25 00		104 50		20	200	
28	600	180 00	—		36 50		130 50		20		
29	400	150 00			24 25		107 50		20	200	
	15450	541200	345 92	—	~~370 00~~ 394 25		978 25		420	3250	3405 00
	✓	✓	✓		✓		✓		✓	✓	✓

SA 068289

ARMEL	680 WELCO	5 STAYZME	ALUM-ON	753 CLINTON	STAYSIZE	NITRATE SODIUM	120 STA COTE
23100	132	8000	2				
4000	116	8800	2				
	116	2000	2				
3500	132	9100	2				
33500	168	5200	2				
31000	152	3900	2				
3500	144	9100	3				
	150	7800	2				
18300		5200	—				
27100	173	1300	—				
28400	124	6200	—				
18700	152	6500	1				
18700	152	6500	1				
	122	10400	1				
7600		7800	2				
26900	164						
4500	136	1400					
28600		1300					
22500	160	4600					
31600	114	9100					
	92	7800	—				
	140	5200	—				
	86	3900					
40500	2725	131100	22				

SA 068290

July, 1928 Mill "D" Chemicals

DATE	ALUM SIZE	CLAY	CP-7 SEPARAN	675 CLINTON	TITE	7.2 GAL NALCO 7/m	100 #B STAY SIZE	680 NALCO	CLAY COUNTER	Sod ALUM
July 5	4 40		8	25600	149 50	1				3
6	6 40		4	11200	107 50					
7	4 40		4	8000	133 00					1
8	3 60		4	8000	138 50	9			4	1
9	3 60		4	11200	105 00	9				
10	3 60		4	12800	100 00	6				
11	3 60		4	14400	106 00	6				
12	2 80		4	12800	100 00	6				
13	4 80		4	11200	110 00	15				
14	4 80		4	6400	118 00					
17	3 60		4	11200	25 50					
18	4 80		4	12800	111 50					
19										
20	3 60		4	11200	114 50					
21	4 80		2	9600	119 50					2
22	3 60		4	11200	105 00	15				
23	4 80		4	17600	91 50					4
24	4 80		4	12800	172 50					9
25	3 60		4	11200	154 50					2
26	3 60		2	11200	155 50					
27	3 60		4	14400	101 00	1				
28	3 60		4	14400	—					
29	3 60		4	12800	100 00	15				
	90 00	—	88	272000	2418 50	83			4	22
			✓		✓	✓				

SA 068291

July, 1978 Mill "E" Chemicals Bryant Coating

DATE	Gal Ammonia	Casein	Soda Caustic	Tank H.T. Clay	Coin White	Tank Latex 636	TSPP	Formaldehyde	Salt Sod	Precote Protein	Boray
July 5-11	560	2530	100	70000	375	18000	188	750	7500	9000	450
10-12	483	2530	200	57500	299	13800	145	575	12000	7500	345
13-14	315	1650	150	37500	195		100	375		4500	300
17-18	160	880	100	20000	130	4800	50	200	4000	2400	120
19-22	560	3080	100	70000	364		182	700	10000	8400	420
24-26	460	2530		60000	299	13800	161	575	11500	6900	345
27-28	240			37528	195	9000	375	500	6500	4500	228
	2778	13200	650	315028	1857	54400	1201	3675	51500	43200	2206

ULTRA

SA 068292

GRAY	ULTRA-BLUE	NIAPO 178	LATEX 620	LATEX 636
4.50	20	116	6.00	
3.45		100		
3.00	20	75		9000
1.20		24		
4.20		150		16800
3.45		86		
2.28				
22.08	40	551	6.00	25800

SA 068293

July, 1978

BLADE COATER CHEMICALS

DATE	GALS H.T. Clay	Ammonia	DC111 NAPCO	DF122 NAPCO	TSPP	UNITEX	KV. KELSIN	673 LATEX	CAM. WHITE	PENFORD Gum 280	PENFORD Gum 280	NA1C
July 5	1225	12	20	8	32	68	30	434				
6	1250	36	20	32	90	34	30	434				
7	2244	47	55	22	32		30	1029	3850			
8-9	2866	37	53	17	71	—	60	1081	1400			
10-11	625	8	10	8	30		15	217	9100	800	200	
12	1875	18	30	12	48	102	45	651				
13	3636	64	80	56	48	34	60	868	4400			
14	1875	18	30	12	48		45	651				
17	1250	28	20	24	72		30	434				
18	—	4			24				9100	800	200	
19	1410	18	24	12	51		75	495				
20	1410	18	24	12	51		75	495				
21-23	2820	36	48	24	102		170	990				
24	940	12	16	8	34		60	330				
25	940	12	16	8	34		60	330				
26	1875	18	30	12	48	68	45	651				
27	1250	12	20	8	32							
28	1250	12	20	8	32	68	30	434				
29	1250	12	20	8	32		30	434				
	29991	4[illegible]	536	291	911	374	890	9958	27850	1600	400	

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Ford 280	NALCO	201 Scripset 720	PC 807	Stay Size	Latex 6107	NACRO	K-CMC 7-L	Atlas	Cellogize	
		175	58	3500						
	14				385	7	105			
	6				138	69	38			
200									10	50
	16				1160		120			
		120	40	2400						
200									10	50
401	36	295	98	5900	1683	76	26[illegible]		20	1(a)

SA 068295

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July, 1978 PULP USED IN HYDROPULPER

DATE	TOTAL	Prince	AIB	MARATHON	Semi-TBC Dryden	Eddy	DOMTAR-90	ASW	Brunswick	AHW	ATHW	ATSW
July 5	1439 40		378 00	465 00	596 40							
6	1265 86		1128 96	116 25		20 05						
7	1446 48		1446 48									
8	1866 68		3981 6	465 00			1003 52					
9	1804 35			1650 75			153 60					
TOTAL	7822 11		3351 60	2697 00	596 40	20 05	1157 12					
TONS	391		168	135	30	1	59					
10	1608 57			1162 50	253 47				192 60			
11	1276 65			390 60	39 76				21 40	701 84	123 05	
12	1174 80			316 20						673 98	117 70	66 92
13	1663 90		529 20	911 40						191 20		32 10
14	1654 62		710 64	771 90						172 08		
TOTAL	7378 54		1239 84	3552 60	293 23	—	—		214 00	1739 10	240 75	66 92 32 10
TONS	369		62	178	15	—	—		11	87	12	3 2
17	1496 27			1046 25		344 86				105 16		
18	1243 01			746 37		324 56				172 08		
19	1318 12					304 76				1013 36		
20	1307 70			604 60		320 80				382 40		
21	1241 33			767 25		368 92				105 16		
22	1443 02			930 00		264 66				152 96		
23	1197 24					336 84				860 40		
TOTAL	9246 69		—	4094 37	—	2265 40	—		—	2791 52	—	— —
TONS	462			205		113				140		
24	1491 27					409 02						
25	1393 98		362 88									
26	1125 88		302 40							406 36		
27	1202 29		332 64			144 36				277 24		
28	881 88					312 78				12 90		
29	650 91					264 66						
	6746 28		997 92	—	—	1130 79	—	—		696 44	—	— —
	337		50	—	—	57	—	—		35	—	— —
	31193 58		5589 36	10343 97	889 63	3416 24	1157 12	2140 00		5227 06	240 75	66 92 32 10

SA 068296

TSW CELGAR SUPERIOR CREST BROOK

210

210
2

9540

9540
5

108225
4770 98340
41718

44805
55620
38625

112995 140058 139050
56 70 70

SA 068297

7, 8, 9

July 1978 PULP USED IN HYDROPULPER

DATE	TOTAL	Superior	Cedar	ASW	AHW	MARATHON	NAHEOLA	PRINCE	ALB.	Brunswick	PRINCE	Bco.	Dryden	Greste
July 5	1951 08	429 12	228 96	865 00	428 00									
6	2098 16	178 80	324 36	770 40	492 20	111 60	220 80							
7	1542 22		153 92	149 80	374 50		662 40	201 60						
8	1349 76		95 40		235 40		36 80	201 60	669 20	111 36				
9	1397 64		133 56		214 00	111 60		161 28	554 48	222 72				
TOTAL	8338 86	607 92	936 20	1785 20	1744 70	223 20	920 00	564 48	1223 68	334 08				
TONS	417	30	47	89	87	11	46	28	61	17				
10	1642 36		171 72	214 00	192 60	427 80			357 84	278 40				
11	1787 94		19 08	995 10	299 60	409 20				64 96				
12	1701 84		133 56	771 80	235 40	372 00				111 36	57 72			
13	1958 40		228 96	1005 80	278 20					445 44				
14	1665 80		171 72	866 70	224 70					37 12	365 56			
TOTAL	8756 34	—	725 04	3873 40	1230 50	1209 00	—	—	357 84	937 28	422 28			
TONS	438		36	194	62	60	—	—	18	47	21			
17	1898 20		305 28	888 10	321 0	93 00				37 12	192 40			350
18	1820 28	286 08	381 60	588 50	278 20	224 10								61
19	1486 16	321 84	267 12	288 90	256 50	83 70								26
20	1387 56	250 32	248 04	545 70	96 30									24
21	1382 60	250 32	267 12	428 00	149 80			163 76						12
22	1421 99		264 28	390 55	192 60			574 56						
23	1742 20		57 24	620 60	235 40		607 20	221 76						
TOTAL	11138 99	1108 56	1790 68	3750 35	1241 20	400 80	607 20	960 08	—	37 12	192 40			105
TONS	557	55	90	188	62	20	30	48	—	2	10			—
24	1255 20		152 64				717 60							
25	1411 92		343 44				441 60	241 92						
26	1278 20		209 88				423 20	645 12						
27	1473 18		181 26	428 00	214 00		55 20	594 72						
28	1429 34		104 94	427 20	42 80			654 40						
29	1672 56		47 70	1027 20	224 70			372 96						
	8520 40	—	1039 86	2182 40	481 50	—	1637 60	2409 12	—	—	—			—
	426		52	109	24		82	120						
	36754 59	1716 48	4491 78	11591 35	4697 30	1833 80	3164 80	3933 68	1581 52	1308 48	615 68			105

H5 863898

Ryden	Greenbrook Eddy
5772	
36556	
123 28	
21	
192 40	350 20
	61 80
	267 80
	247 20
	123 60
19240	1050 60
10	53
	384 96
	384 96
	769 92
	38

total Bryant
6794817
3397 tons

SA 068299

5,6

July, 1978 CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEX ZENLEY	TITE	NALCO	CANELWH
July 5	12 05	8 25	15 00	15 00	27 00	132	
6	10 25	7 98	31 00	29 00	60 00	120	
7	10 15	9 70	42 00	33 50	63 00	116	
8	11 55	8 78	30 00	33 50	51 50	128	
9	14 70	12 75	—	15 00	26 00	168	
	58 70	47 46	118 00	126 50	227 50	664	
10	13 30	10 05	13 50	10 50	19 00	152	
11	12 26	6 48	70 13	7 88	24 50	132	
12	10 51	14 69	107 50	13 50	24 00	130	
13	15 05	9 38	30 00	7 50	15 00	172	
14	15 16	10 13	13 95	6 98	13 95	173	
	66 28	50 73	236 08	46 36	96 45	759	
17	12 25	8 53	4 50	2 25	1 50	124	
18	13 13	9 81	56 25	7 50	20 00	150	
19	13 65	8 63	126 00	6 75	18 00	156	
20	15 58	9 14	81 38	7 50	33 75	122	
21	15 75	10 76	51 00	11 00	37 00	128	
22	14 80	10 78	9 00	15 00	33 50	164	
23	11 90	7 78	81 00	17 50	72 50	136	
	97 06	65 43	409 13	67 50	216 25	980	
24	12 95	11 25	—	20 00	40 00	119	
25	14 00	11 75	—	17 50	35 00	157	
26	9 97	6 94	67 50	17 50	85 00	114	
27	8 65	4 83	57 00	29 00	98 50	92	
28	10 15	5 96	57 00	36 50	120 50	104	
29	8 20	4 67	51 00	30 75	107 50	86	
	63 92	45 40	232 50	151 25	486 50	672	

5A 068300

7.8

July, 1978 CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSIPEY	ZEALEX	TITE	NALCO	CHMLWH
July 5	26 10	53 40	71 75	35 60		143 50	267	
6	16 80	12 80	84 75	14 50		104 00	207	
7	23 50	20 43	47 50	27 00		130 00	240	
8	24 85	21 55	63 90	28 50		132 25	253	
9	32 60	19 20	69 30	55 00		154 50	252	
	115 85	127 38	339 20	160 60		664 25	1221	
10	25 30	17 42	115 50	27 00		68 50	186	
11	26 05	18 90	109 25	41 00		119 50	291	
12	21 50	17 70	57 00	59 00		139 50	258	
13	51 90	22 91	52 50	38 50		127 50	227	
14	24 11	19 54	15 00	28 75		114 75	220	
	148 86	96 47	349 25	194 25		569 75	1182	
17	19 00	12 15	33 00	5 00		22 50	528	
18	41 00	16 15	60 00	31 00		84 50	252	
19	17 75	14 10	48 75	30 00		102 00	213	
20	20 90	16 10	12 00	32 50		116 00	243	
21	20 25	15 30	55 50	26 50		119 50	216	
22	19 40	14 05	63 00	28 50		119 00	201	
23	27 70	15 65	124 25	30 00		89 75	252	
	166 00	103 50	396 60	177 50		533 75	1905	
24	20 70	18 10	90 75	14 00		157 75	244	
25	16 75	14 05	43 50	25 00		160 50	192	
26	18 50	15 40	58 50	27 50		142 00	216	
27	18 13	16 60	61 13	41 25		138 75	218	
28	20 50	18 60	77 55	70 00		191 50	246	
29	18 38	16 38	76 05	47 75		130 75	224	
	112 96	99 33	407 48	225 50		921 25	1340	

SA 068301

AUS.

Mill "C" Chemicals

DATE	Alum	3000 # BT. CLAY	GAL 9x2 SIZE	100# 675 CLINTON	ANSIKY	Zealex	TITE	100# B DFI SPRAYSIZE	ACTRA	C-P 7 GALS Brm	SOPAMAN	PARNEC
July 31	7.00	15000	21 V6		27.25		61.00		20		200	23 500
Aug 1	6.00	6000	21 V6		17.50		32.00		20		100	36 500
2	—	6000	21 V6		17.50		31.50		20		200	37000
3	7.00	3000	42 32		20.00		36.00		20		100	30400
4	5.00	150.00	21 V6		29.00		81.50		20		200	13000
5	4.00	120.00	30 36		29.00		90.00		20		100	—
6	4.50	210.00	—		20.75		49.50		20		200	—
7	4.50	210.00	—		20.75		49.50		15		200	—
8	5.50	150.00	29.44		35.00		82.00		20		200	
9	5.00	120.00	29.44		41.50		83.50		20		150	—
10	5.00	240.00	29.44		28.50		62.50		20		200	—
11	7.00	150.00	29.44		26.00		59.00		20		250	87.00
12	3.00	60.00	29.44		12.50		32.50		20		200	23000
14	13.00	150.00	29.44		17.50		45.50		20		250	32200
15	3.50	60.00	—		12.50		32.50		10		250	15800
16	4.50	60.00	29.44		8.75		17.50		10		200	12000
17	8.50	150.00	29.44		12.50		25.50		20		100	29600
18	8.50	150.00	29.44		20.00		46.00		20		100	30250
19	5.00	90.00	29.44		15.00		33.00		15		100	24800
21	8.50	270.00	29.44		16.50		35.75		15		200	
22	8.00	300.00	29.44		19.75		53.50		20		200	
23	7.00	240.00	29.44		50.00		118.50		20		250	
24	7.50	300.00	29.44		39.00		67.50		20		200	
25	6.00	330.00	29.44		43.25		81.50		20		200	
26	7.00	300.00	29.44		14.75		61.00		20		250	
	150.50	4115.00	624.36		544.75		1368.25		450		4450	31[illegible]
		✓	✓		✓		✓					

4.7

8 lbs x 4400 per gal. = 35200 ✓

By 40P 3/16

LIN 63 NEUCL

SA 068302

	Lin 680	5	753	NITRATE	120
ARMEC	NELCO	STAYZONE	ALUM-ON	CLINTON STAYSIZE	Sodium STACOTE
23 500	134	79 00	2		
36 500	160	26 00	—		
370 00	160	26 00			
304 00	160	39 00	3		
130 00	—	52 00	—		
—	104	52 00	1		
—	86	78 00	1		
—	86	56 00	1		
	112	97 00	2		
—	128	84 00	1		
—	100	71 00	1		
87 00	102	96 00	—		
230 00	—	41 00			
322 00	—	40 00	5		
158 00	88	36 00	1		
120 00	58	100 00	1		
296 00	148	40 00	3		
302 50		20 00	3		
248 00	138	26 00	2		
	118	95 00	3		
	144	118 00	3		
	130	76 00	2		
		84 00	3		
	128	84 00	2		
	100	56 00	3		
1 50	2298	1525 00	42		
1 400	OK				
396					

SA 068303

Aug 1978 Mill "D" Chemicals

DATE	Alum	Size (Gals)	Clay (Gals)	Separan (CP 7)	Clinton (675)	Tite	Nalco 7/m (7.2 Gal)	Stay Size (100 #13)	Nalco (680)	Clay Counter	Alum (Sou)	Stay Z
July 31		360	6		14400	7100	21			5	1	
Aug 1		360	—		9600	9450	15			6	1	
2		360	—	2	9600	10060	1			3	1	
3		360			11200	8900	15			5	1	
4		360		4	12800	9250	19			6	1	
5		420			8000	—	1			—	2	
7		360		6	14400	13000	30					32
8		240		4	11200	10000	1					
9		360		4	11200	10500	24					
10		360		3	9600	10000	21				4	
11		360		4	12800	10000	36					
12		480		4	9600	9650	48			23	1	
14		360		4	19200	16750	30			3	1	
15		360		4	14400	18000	33			4	1	
16		360		4	14400	18000	33					
17		360		4	9400	11200	33			2	1	
18		390		7	9400	10000	15					
19		480		2	8500	10500	—					
21		240		6	13900	16000	18			7	1	
22		360		6	9600	9350	30			4	1	
23		360		6	9600	10000	24			4	1	
24		360		6	11200	11050	15			3	1	
25		360		6	6400	8400	18			4	1	
26		480		6	4800	6950	1				9	
		8850	6	96	265200	254100	482			79	29	

81420

SA 068304

Aug, 1978 100

Mill "E" Chemicals

DATE	Gal Ammonia	Casein	Soda Caustic	Tank H.T. Clay	Com. White	Tank Latex 636	TSPP	Formaldehyde	Salt Sod	Precote Protein	Boray	Utkalt
July 31-Aug 2	460	25 30		600 00	299		161	575	115 00	69 00	3 45	
3-4	380	15 40	100	350 00	182	84 00	112	350	60 00	42 00	2 10	
7-9	480	27 50		650 00	325	134 00	168	500	110 00	72 00	3 60	
10-11	300	15 40		575 00	187	90 00	105	375		42 00	3 00	
14-15	294	15 40		350 00	182	84 00	112	350	10 00	42 00	2 10	
16-18	462	24 20		550 00	286	132 00	134	550	110 00	66 00	3 30	
21-23	480	20 90		475 00	247	114 00	133	475	95 00	57 00	2 85	
24-25		18 00		350 00	182	73 30	98	250	125 00	54 50	2 10	
	2776	162 10	100	3901 00	1890	711 30	10 43	3425	625 00	447 50	22 47	

8.3 lbs per Gal

23124

SA 068305

		178	620		
GRAY	UTRAMBLUE	NAKO	LATEX	LATEX636	RED BXP
345		150		13800	1
210		60			
360		160			
300		50			
210		48			
330		74			
285		70			
210		205			
2247	-	817		13800	1

SA 068306

fes

Aug. 1998

BLADE COATER CHEMICALS

DATE	GALS HI.CLAY	Ammonia	DC111 NAPCO	DF122 NAPCO	TSPP	UNITEY	F.V. KEIGIN	673 LATEX	CAMELWH.	PENFORD Gum 200	PENFORD Gum 280	
July 31	2500	24	40	16	68	34	60	868				
Aug 1	1250	12	20	8	32	68	30	434				
2	1095	26	18	22	71	34	45	382				
3-4	1880	24	32	16	68	—	120	660				
7	1875	18	30	12	48	102	45	651				
8	1875	18	30	12	48	102	45	651				450
9	2301	23	45	24	48	102	45	651	1650			
10	767	12	15	12	44	34	15	217	9650	800		350
11	1250	12	20	8	32	—	30	434				
12	1250	12	20	12	32	—	30	434				
5	1250	12	20	8	32	68	30	434				
14	1250	12	20	12	32	—	30	434				
15 & 16	3125	30	50	20	80	170	75	1085				
17	1875	18	30	12	48	102	45	651				
18	1250	12	20	8	32	68	30	434				
19	1250	12	20	8	32	68	30	434				
21	1875	18	30	12	48	102	45	651				
22	1875	18	30	12	48	102	45	651				
23	1720	18	28	12	49	68	55	599				
24	1410	18	24	12	51	—	90	495				
25	1410	18	24	12	51	—	90	495				
26	940	12	16	18	34	—	60	330				
	[illegible]	[illegible]	[illegible]	289	[illegible]	1224	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

8.53

8.53 per bbl

3240

9A SCALPSE

1.

9.1

SA 068307

9.6

[illegible]	9ALS			112	7AL							
[illegible] 280	SCRIPSET	PC 807	STAYSIZE	LATEX	6107	NAPCO 1C	NALCO 201	CMC 7-L	ATLAS 239-1	COLLODIZE		
	105	35	2100									
450												
					420	3	6	45				
350					110	11	3			10	50	
500	105	35	21[illegible]	5[illegible]		14	9	45		10	[illegible]	
	9.1	301										

SA 068308

MILL
C
5,6 MACH.

Aug 1978 PULP USED IN HydroPULPER

DATE	TOTAL	CRESTBROOK	CELGAR	Eddy	PRINCE ALB	BRUNSWICK	MARATHON	DRYDEN	DOMTAR	PRINCE GEO.
July 31	1343 19	939 39	71 70	332 10						
Aug 1	1818 51	129 75	860 40	132 84	695 52					
2	1303 83	1167 75			136 08					
3	1628 26		860 4		1542 84					
4	1210 80		630 96		1694 4	98 40	312 00			
5	999 30		702 66		60 48	236 16				
TOTALS	8303 91	2236 89	2351 76	464 94	2603 76	334 56	312 00			
TONS	415	112	118	23	130	17	16			
7	1117 40		970 34			147 06				
8	1074 64		936 88			137 76				
9	1304 76	519 00	611 84			373 92				
10	995 76		774 36			221 40				
11	1419 82		119 50			708 48	192 00	399 84		
12	675 36						504 00	171 36		
	6781 74	519 00	3412 92	—	—	1588 62	696 00	571 20		
	339	26	171			79	35	28		
14	1409 52						1008 00	401 52		
15	811 40			211 40			600 00			
16	557 40			132 84		88 56	336 00			
17	1485 30			361 62		19 68	1104 00			
18	2068 62	560 52		332 10			1176 00			
19	1419 96	435 96					984 00			
	7252 20	996 48	—	1037 96	—	108 24	5208 00	401 52		
	386	50		52		5	260	20		
21	919 80	373 68				546 12				
22	968 76				893 12	575 64				
23	1114 56		442 68		544 32	83 64			43 92	
24	1445 22		587 94		257 04				600 24	
25	738 45		344 16						361 36	42 93
26	945 45		473 22							472 23
	6132 24	373 68	1847 00		1194 48	1205 40			995 52	515 16
	307	19	92		60	60			50	26
	13976 04	4126 05	7612 [illegible]		1503 40	7794 24	3236 82	6216 00	972 72	995 52	515 16

SA 088309

MLL
D
7, 8, 9 MACH

Aug, 1978 Pulp used In Hydropulper

DATE	TOTAL	ASW	INVAHOLA	AHW	PRINCE ALB	Dryden	Eddy	CELGAR	BRUNSWICK	CRESTBROOK	SUPERIOR
July 31	186248	48150	282224	7490	48384						
Aug 1	157952		82414	11770	15120	45696	29520				
2	179812	34240	76856			2856	19188	19120	27552		
3	171502		41670	25680			30996	21988	51168		
4	160280		55560	29960			5904		31488	97368	
5	118184		25928						59040	33216	
TOTAL	913978	82390	304652	74900	63504	48552	59040	41108	169248	70584	
TONS	457	41	152	37	32	24	30	21	85	35	
7	169808		18520			26656			112176	12456	
8	181744					38080			103664		
9	163116		61116		42336	11424			48240		
10	187256		33336		36288			15296	202336		
11	176122				11088			26280	138744		
12	84540		38892		23184			5736	14728		
	962586	—	151864	—	112896	76160	—	47322	561888	12456	
	481		76		56	38		24	281	6	
14	177832		88896		39312			19120	30504		
15	134912		22224		54432			26768	31488		
16	218480		15556				[illegible]		112896		
17	180164				94752				5412		
18	110256				84672				25564		
19											
	641616		116676		273168	—	—	45888	205884	—	
	320		58		136			23	103		
21											
22											
23											
24	108336		27780	12840			30996				36720
25	151808		41670	12840			46494	18164			32640
26	106994		31906	24610			21402	8604		4152	16320
	367138		101556	50290			98892	26768		4152	85680
	183		50	25			49	13		2	43
	2895518	82390	674548	125190	441568	1247 12	157932	161086	937020	87192	95680

SA 068310

SUPERIORS

TOTAL
5782927 = 2.91
TONS

367 20
326 40
163 20
356 80
43
17. 50

SA 068311

M.LLC
5.6

Aug, 1978 CHEMICALS USED IN BEATERS

DATE	Alum	SIZE	CLAY	ANSILEY ZENLEY	TITE	NALCO	CAMELWH.
July 31	12.78	19.72	19.50	27.25	61.00	1.34	
aug 1	15.05	11.75	—	17.50	32.00	1.60	
2	12.85	11.75	—	17.50	31.50	1.60	
3	12.60	12.00	—	20.00	36.00	1.60	
4	11.63	9.24		37.50	80.50	1.18	
5	10.63	9.76		56.25	85.50	1.04	
	75.54	74.22	19.50	176.00	326.50	8.36	
7	8.53	7.94	39.00	20.75	49.25	90	
8	11.00	8.25	30.00	35.00	78.50	1.12	
9	12.70	12.01	33.00	41.50	83.50	1.28	
10	9.65	9.03	33.00	28.50	62.50	94	
11	12.26	7.37	60.00	26.75	60.50	1.28	
12	7.75	5.63	—	12.50	32.50	80	
	61.89	50.23	195.00	165.00	366.75	6.32	
14	15.00	10.13	—	17.50	45.50	1.48	
15	9.45	6.13	—	12.00	32.50	88	
16	5.60	4.50	—	8.75	17.50	14	
17	15.10	11.55	5.25	15.13	32.50	42	
18	15.10	12.25	—	20.00	46.00	1.34	
19	12.08	10.13	—	15.00	33.00	1.36	
	72.33	54.69	5.25	88.38	207.00	5.62	
21	10.33	7.28	69.00	16.25	35.75	1.18	
22	12.95	7.45	88.50	100.25	56.00	1.48	
23	11.55	7.81	58.50	50.00	124.00	1.32	
24	10.85	10.50	10.05	39.00	71.50	1.24	
25	11.20	10.63	44.25	43.25	81.50	1.28	
26	8.75	8.38	82.50	32.75	61.00	1.00	
	65.63	52.05	352.80	281.50	429.75	7.50	

SA 068312

M.LLD
789.

Aug, 1978

CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEY	ZEALEY	TITE	NALCO	CANELWH.
July 31	14 25	9 45	89 40	9 50		36 50	171	
Aug 1	27 05	18 25	332 25	26 50		92 00	303	
2	20 50	35 00	100 00	17 50		74 70	253	
3	20 00	15 60	102 60	35 50		83 00	246	
4	21 50	18 25	124 05	45 00		119 00	262	
5	17 76	15 05	112 50	35 25		115 25	214	
	121 06	111 60	770 80	169 25		520 45	1449	
7	22 75	16 75	164 40	22 50		80 00	270	
8	23 00	15 05	168 75	12 50		45 00	279	
9	22 50	15 80	134 85	20 50		49 50	270	
10	23 25	20 40	106 05	30 00		78 00	279	
11	23 25	59 70	123 85	15 00		66 50	279	
12	18 13	14 91	60 30	27 25		85 75	233	
	132 88	142 61	758 20	127 75		404 75	1610	
14	23 75	21 40	42 40	62 00		154 50	288	
15	19 55	15 40	58 87	52 50		110 50	226	
16	22 85	52 85	37 50	50 50		124 50	228	
17	18 50	16 35	19 50	35 00		111 75	222	
18	21 00	29 70	45 05	42 00		118 50	252	
19	19 00	18 75	78 75	32 50		101 00	228	
	124 65	194 45	282 07	274 50		717 75	1444	
21	20 50	20 48	73 50	55 00		153 25	246	
22	20 50	17 55	88 20	32 50		120 25	246	
23	21 00	18 30	88 80	43 50		98 00	264	
24	20 25	17 85	81 30	57 00		109 00	243	
25	20 75	17 85	74 90	51 00		84 00	249	
26	15 83	13 20	84 40	38 00		64 75	173	
	118 83	105 23	491 10	277 00		629 25	1421	

SA 068313

Sept. 1978

Mill "C" Chem. Cals

DATE	Alum	3000# Clay	Gal 9x2 Size	100# 675 Clinton	Ansiley	Zealey	Tite	100# B Stay Size	DFI Actrafoam	8 IBS Gal per C-P 7 Separan	Parmel
Aug 28	800	270.00	29.44		22.75		60.25		20	100	223.60
29	600	180.00	29.44		28.00		67.00		20		327.00
30	600	90.00	29.44		33.00		66.00		20	1.50	323.40
31	550	300.00	29.44		19.00		55.00		20	2.00	135.00
Sept 1	550	180.00	29.44		23.00		58.00		20	2.00	261.20
2	600	150.00	29.44		12.75		28.00		20	1.00	266.00
5	550	300.00	29.44		18.25		48.25		15	2.50	
6	700	330.00	29.44		22.50		51.50		15	1.00	
7	550	300.00	29.44		26.25		51.50		20	2.50	
8	500	210.00	29.44		21.75		42.50		20	2.50	
9	300	180.00	21.16		24.25		27.00		15	2.00	
11	1000	150.00	29.44		13.50		27.00		20	2.50	332.20
12	550	90.00	29.44		12.00		24.00		20	2.00	338.00
13	500	180.00	29.44		11.25		23.00		20	2.50	307.40
14	550	300.00	29.44		12.50		31.50		20	2.50	168.40
15	600	300.00	29.44		20.00		47.50		15	2.50	
16	700	300.00	29.44		17.00		34.00		15	2.00	
18	400	120.00	29.44		20.00		40.00		15	2.50	271.00
19	550	90.00	29.44		22.00		44.00		15	1.50	272.60
20	550	150.00	29.44		22.00		44.00		15	1.00	332.00
21	600	270.00	29.44		36.00		75.00		15	2.00	15.00
22	650	240.00	29.44		31.00		72.00		15	2.50	—
23	600	210.00	29.44		28.50		66.00		15	1.50	
25	550	210.00	29.44		42.50		100.50		15	2.00	
26	700	180.00	29.44		37.50		99.00		15	1.50	
27	700	210.00	29.44		37.50		92.00		15	2.00	
28	750	180.00	29.44		35.25		85.00		15	1.50	85.00
29	700	180.00	29.44		18.00		48.00		15	1.00	267.40
30	600	90.00	29.44		11.50		34.50		15	2.00	22.64
	175.50	5940.00	845.48		679.50		1532.00		4.95	53.00	3947.84
									57	424.00	1494

SA 068314

NAME	680 NALCO	5 STAYZINC	ALUM-ON	753 CLINTON	STAYSIZE	NITRATE Sodium	120 STACOTE
22360	142	8300	2				
32700	160	6700	2				
32340	176	3300	2				
13500	144	12000	2				
36120	168	6000	2				
26600	140	3000	2				
	114	10300	2				
	120	6000	3				
		10000	2				
		6000	2				
	100		1				
33220	140	8400	4				
33800	164	6100	2				
31740		6300	2				
16840	148	6000	2				
	140	14000	2				
	138	7200	3				
27100	160	10200	3				
27260	184	6000	2				
33200	188	7000	2				
1500	144	12200					
	112	8000					
	101	7000					
	124	10200	2				
	112	10000	3				
	112	8000	3				
8500		6000	3				
26740	152	5400	2			7200	
2264	147	3000	2				
147 84	3630	212600	59				
194							

SA 068315

SEPT. 1978

MILL "D" CHEMICALS

DATE	ALUM	SIZE GALS	CLAY GALS CP-7	SEPARAN	CLINTON 675	TITE	NALCO 7.2 GALS	STAYSIZE 100#B	NALCO 680	CLAYCOUNTER	ALUM 500	STAYZ
28		360		6	192.00	110.00	21					
29		360		6	96.00	100.00	27					
30		360			80.00	112.50	12					
31		360		6	80.00	112.00	21					
SEPT 1		360			80.00	100.00	12					
2		240		6	48.00	90.00	6			3	1	
5		360		4	160.00	110.00						
6		360		8	80.00	172.00	12			1	1	
7		360		4	108.00	152.00	16			3	1	
8		360		6	86.00	116.50	2			2	2	
9		240		4	32.00	100.00	3					
11		360		6	172.00	165.50	21			8		
12		360		6	140.00	155.00	24			4	1	
13		360		4	80.00	160.00	18			2	1	
14		360		4	48.00	101.00	18			2	1	
15		360		4	112.00	103.00	6			4	1	
16		240		4	70.00	61.50	15			7	1	
18		240		4	192.00	100.00	27					
19		360		4	128.00	120.00	24					
20		240		6	80.00	110.00	12					
21		360		4	90.00	110.00	18					
22		360		4	90.00	110.00	12					
23		360		5	48.00	110.00	15			5	1	
25		480		4	114.00	90.00					2	
26		480		4	112.00	122.50	1				1	
27		480		6	142.00	129.00	1					
28		720		—	141.00	134.00						
29		720			112.00	124.00						
30		240		2	32.00	103.50	32			3	1	
		10800		121	2945.00	3389.00	376			41	15	
				968								

SA 068316

Sept. 1978 Mill "E" Chemicals

DATE	Gals Ammonia	Casein	Soda Caustic	Tank H.T. Clay	Com. White	Tank Latex 636	T.S.P.P.	Formaldehyde	Salt Sod.	Precote Protein	Borax
Aug 28-30	4 62	24 20		55000	286	13200	1 54	550	70 00	66 00	3 30
Aug 31 Sept 1	2 84	15 40	200	35000	182		1 50	350	7000	4200	2 10
5-6	2 52			300 00	182	7200	99	300	6000	3900	1 95
7-8	3 57	16 50		42500	221	10200	1 12	375	7000	4800	2 55
11-12	3 20	17 60		37500	200	9600	1 12	400	3000	48 00	2 40
13-15	4 62	24 20		57500	2 86	13200	1 68	550	7500	66 00	3 30
16-19	5 28	24 20		57500	2 64	13200	1 54	550	3500	66 00	3 30
20-24	4 83	25 30		57500	2 99	13800		575	11500	6900	3 45
25-27	4 83	26 30		57500	2 99	13800	1 61	575		6900	3 45
28-29	2 44	15 40		350 00	2 82	111 48	3 85	6 85	2 10	4200	1 20
	38 75	188 10	200	4650 00	25 01	1053 48	14 95	49 10	527 10	560 00	27 00

8.3 lbs per Gal

32162

105348
+ 8400
113748
x 46%
52324

30 RAY	MITRA BLUE	NALCO 178	LATBY 620	LATBY 636	Rtd Byd	NOPCO 1407
330		75				
210	20	50		8400		
195		42				
253		55				
240						30
330		75				
380						96
345						76
345	20	76			2	
120	20	35				
2700	60	408		8400	2	202
✓	✓	✓		✓	✓	✓

SA 068318

SEPT. 1978 BLADE COATER CHEMICALS

DATE		~~Gals~~ H.T. CLAY	AMMONIA	DC111 NAPCO	DE122 NAPCO	T.S.P.P.	UNITEY	C.V. KELGIN	673 LATEY	CAMEL WH.	PENFORD GUM 200	PENFORD GUM 280	SCR.
AUG	28	17 20	18	28	12	49		60	600				
	29	18 75	18	30	12	48		45	651			500	
	30	19 00	51	55	40	16				4950			
	31	23 00	44		15	15				650			
SEPT.	1	13 50	28			5				550			
	2	12 50	12	25	8	32		30	434				
	5	12 50	12	20	8	32		30	434				
	6	12 50	12	20	8	32	21	30	434				
	7	9 40	12	16	8	34		60	330				
	8	9 40	12	16	8	34		60	330				
	9	12 40	12	20	8	32	34	30	434				
	11	12 50	12	20	8	32	68	30	434				
	12-13	43 75	42	70	28	112	102	105	1519				
	14	25 00	24	40	16	68		60	868				
	15	25 00	24	40	16	68		60	868				
	16	25 00	36	40	28	94		60	868				
	18	25 00	24	40	16	64		60	868				
	19	25 00	24	40	16	64		60	868				
	20	6 25	6	10	4	16		15	217				
	21	18 25	18	30	12	48	102	45	657				
	22	25 00	24	40	16	64	136	60	868				
	23	12 50	12	20	8	32	34	30	434				
	25	12 50	22	20	18	57	68						
	26	10 95	12	18	12	57	34	45	382	9100	800	200	
	27	10 95	12	18	8	33		45	382				
	28-29	37 50	36	60	24	96	102	90	1302				
X	30	18 75	18	30	12	48	102	45	651				
		194 55	577	766	369	282	803	1138	1482 7	16250	800	200	
			8.33 per Gal 4806	8.5	7.53								

SA 068319

·nFORD ·GM 280	GALS SCRPTSET	PG 807	112 STAYSIZE	6107 LATEX	NAPCO 1C	NAPCO 201	C MC 7-L	ATLAS 2371	CC1100.ZE
500									
				1260	9	2	135		
					6				
					5				
	90	30	1800						
	75	25	1500						
200					10				50
200	165	55	3300	1260	30	2	135		50
	9.1								

BLADE COATER BROKE

DATE	COATED	UNCOATED	SLABS
Aug 28	2800	900	
Aug 29		36 00	
30		32 50	
31	—	—	
Sept 1	—	—	
2	1500	600	
5	28 00	950	
6	36 00	900	
7	26 00	900	
8	61 70	1800	
9	1000	1500	
11	33 40	1400	
12	63 40	1500	
13	40 50	1200	
14	19 40	400	
15	24 00	900	
16	28 70	1000	
18	—	1350	
19	53 60	36 00	
20	44 00	2200	
21	1505	—	1838
22	22 32	—	3 187
23	13 30		1092
25	21 00	900	
26	48 00	1700	
27	41 00	1050	
28	34 00	900	
29	61 00	1020	
30	50 00	1110	
	828 37	346 30	6057

DATE
Aug.
Sept

5A 068321

COATING MILL E BALED WASTE

DATE	WET LBS STRENGTH
Aug 28	11980
29	9950
30	10150
31	4880
Sept 1	10530
5	8285
6	10275
7	10140
8	11655
9	9915
11	6885
12	10190
13	5445
14	8660
15	10815
16	10380
17	8905
18	9605
19	10710
20	12700
21	12245
22	14205
23	24970
25	13610
26	10050
27	10070
28	11016
29	11214
	303855

SA 068322

M.LLC

5.6 MACH. SEPT. 1978 PULP USED IN HYDROPULPER

DATE		TOTALS	PRINCE GEO	MARATHON	CELGAR	EDDY	ASW	BRUNSWICK	NAHEOLA	SUPERIOR	Sun Pt. Dryden	CRESTBROOK
AUG	28	1631 55	347 76	469 30	814 49							
	29	1683 14	45 36	1086 80	312 18	238 80						
	30	1986 60		1111 50	312 18	562 92						
	31	1359 29		370 50	383 13	35 82	42 80	527 04				
SEPT	1	1385 06		148 20	1014 62		85 60	136 64				
	2	1432 18			1400 08		32 10					
		9477 42	393 12	3186 30	4226 65	837 54	160 50	663 68				
TONS		474	20	159	212	42	8	33				
	5	1408 78		217 36	903 66		214 00		73 76			
	6	1409 24		337 12	832 48		278 00			61 44		
	7	1479 33		276 64	132 44		208 65			629 76	231 84	
	8	1239 18		266 76	75 68					471 04	425 70	
	9	1068 30		217 36	416 24						434 70	
		6604 83		1215 24	2360 50		700 65		73 76	1162 24	1092 24	
TONS		330		61	118		35		4	58	55	
	11	1473 31		815 10	165 55						492 66	
	12	1744 78		1136 20							608 58	
	13	1334 64		815 10	99 33						420 21	
	14	1278 17		568 10	255 42		144 45		179 79		130 41	
	15	956 53			245 96		171 20		539 37			
	16	1016 06			283 60		428 00		304 26			
		7803 49		3334 50	1050 06		743 65		1023 42		1651 86	
TONS		390		168	52		31		51		82	
	18	1881 72		1259 70	397 32		224 70					
	19	1985 44		1333 80	416 24		235 40					
	20	2054 56		1309 10	435 16		310 30					
	21	1228 70		197 60	378 40		652 70					
	22	1246 64		716 30	340 56		160 50	29 28				
	23	1091 66		222 30		429 84		117 12				322 40
		9488 42		5038 80	967 68	429 84	1583 60	146 40	—		—	322 40
		474		252	78	21	79	7				16
		33374 66	393 12	12774 84	9614 92	1267 38	3188 40	810 08	1097 18	1162 24	2744 10	322 40

5.6

M.LLC

DATE

SEPT.

SA 068323

5.6

MLLC Cont. Sept. 1978 Pulp used in Hydropulper

DATE	TOTALS	Crestbrook	Eddy	Celgar	Brunswick	Superior	Dryden
Sept 25	1133 30	436 80	696 50				
26	1265 28	405 60	859 68				
27	1843 83	182 00	819 89	841 94			
28	1178 97			1139 93	39 04		
29	1516 27			1300 75	185 04	20 48	
30	1425 06			212 85	1782 0	348 16	685 85
	8362 71	1024 40	2376 07	3495 47	412 28	368 64	685 85
	418	51	119	175	21	18	34
		✓	✓	✓	✓	✓	✓

322 40
322 40
6
322 40

MILLD

7.8.9 MACH SEPT. 1978 PULP USED IN HYDROPULPER

DATE		TOTALS	CREST BRANCH	PRINCE A/B	NAHEOLA	A HW	CELGAR	PRINCE GEO	MARATHON	GRANDE PRAIRIE	ASW
AUG	28	1872 76	915 20	322 56	258 16	149 80	227 04				
	29	1850 24		443 52	184 40	107 00	208 12	907 20			
	30	1612 28		60 48	663 84	385 20	18 92	483 84			
	31	1113 06		302 40	405 68	42 80		362 88			
SEPT	1	1265 14		796 32	82 98	64 20	321 64				
	2	1115 96		362 88	368 80	214 00	170 28				
		8830 44	915 20	2288 16	1963 86	963 00	946 00	1753 92			
TONS		442	46	114	98	48	47	88			
	5	1477 40		40 32	464 44	361 32	208 12	403 20			
	6	1417 68		665 28	110 64	64 20	397 32	120 96	59 28		
	7	1587 24	291 20	252 00	405 68	235 40	283 80		69 16		
	8	1671 04	904 80		147 52	85 60	954 08		79 04		
	9	1404 88	31 20			42 80	435 16	826 56	69 16		
		7508 24	1227 20	957 60	1128 28	789 32	1778 48	1350 72	276 64		
TONS		375	61	48	56	39	89	68	14		
	11	1552 28		90 72	700 72	406 60		30 24		324 00	
	12	1700 40		110 88	608 52	321 00				660 00	
	13	1569 84		725 76	18 44		321 64			504 00	
	14	1838 32		987 84	55 32		435 16			360 00	
	15	1706 20		362 88	165 96		491 92	685 44			
	16	1427 64		483 84	405 68	192 60	264 88	80 64			
		9794 68		2761 92	1954 64	920 20	1513 60	796 32		1848 00	
		490		138	98	46	76	40		92	
	18	1585 16		161 28		214 00	75 68				1134 20
	19	2009 76		362 88		235 40	170 28				1241 20
	20	1784 92		564 48		214 00	264 88	120 96			620 60
	21	1862 76				278 20		1028 16			556 40
	22	2013 48				449 40		665 28			898 80
	23	1450 56		60 48		342 40		362 88			684 80
		10706 64		1149 12	-	1733 40	510 84	2177 28	-	-	5136 00
		535		57		87	26	109			257
		36839 70	3142 40	7156 80	5046 78	4405 92	4748 92	6078 24	276 64	1848 00	5136 00

7.8.9
MILLD
CON'T
DATE
SEPT.

SA 068325

7, 8, 9
MILLD

CON'T SEPT. 1978 PULP USED IN HYDROPULPER

DATE	TOTALS	PRINCE AIR	Eddy	ASW	AHW	MANHOLA	CRESTBROOK	PRINCE GEO.	BRUNSWICK	MARATHON
SEPT. 25	1935 16	604 80	79 60	727 60	449 40	73 76				
26	1510 22	362 40	238 60		406 60	562 42				
27	1698 60	60 48	214 92		953 10	857 46	31 20	181 44		
28	1763 32		214 92		299 50	968 10	780 80			
29	1577 08		278 60		42 80	239 72	468 00	453 60	94 36	
30	1048 56	60 48	167 16		10 70	46 10		241 92	117 12	405 08
	9532 94	1028 16	1194 00	727 60	1562 10	2747 56	780 00	876 96	211 48	405 08
	477	51	60	36	78	132	39	44	11	20

PRINCE GEO.	MARATHON CEDAR	Eddy	ASW	BRUNSWICK	MANHOLA	SUPERIOR	DRYDEN	SEOBEC	CRESTBROOK
7348 32	13456 56	1785 931	4837 45	905 200	1499 84	8891 52	1530 88	3489 95	4269 20

PRINCE AIR	AHW	GRAND PRO.
8184 96	5968 02	1848 00

TOTAL 88110 00 4406

SA 068326

M. LLC

5,6 Sept. 1978 CHEMICALS USED IN BEATERS

DATE		ALUM	SIZE	CLAY	ANSILEY ZEOLEY	TITE	NALCO	CAMEL WH.
AUG	28	12 43	8 36	4 13	22 75	60 25	1 42	
	29	14 00	9 18	—	28 00	55 00	1 60	
	30	15 40	10 18	—	33 00	66 00	1 76	
	31	12 60	9 21	64 50	21 00	55 50	1 44	
SEPT	1	14 70	12 41	33 00	23 00	56 00	1 68	
	2	12 44	8 97	15 38	12 75	29 50	1 44	
		81 57	58 31	117 01	140 50	322 25	9 34	
	5	9 98	8 14	67 50	18 25	48 25	1 14	
	6	10 50	9 75	90 00	22 50	54 70	1 20	
	7	11 55	11 25	96 00	29 25	51 50	1 32	
	8	10 50	11 51	76 50	22 25	55 50	1 20	
	9	9 10	9 75	65 25	27 75	48 75	1 04	
		51 63	50 40	395 25	127 00	258 70	5 86	
	11	17 25	14 38	13 50	18 00	101 50	1 82	
	12	17 05	21 75	12 00	12 00	24 00	1 72	
	13	15 45	10 69	14 25	11 25	23 00	1 58	
	14	13 13	8 56	50 25	62 75	31 50	1 50	
	15	12 25	6 88	105 00	20 00	43 50	1 40	
	16	12 08	6 68	103 50	17 00	34 00	1 38	
		87 21	68 94	298 50	141 00	257 50	9 40	
	18	14 00	9 78	30 00	20 00	40 00	1 60	
	19	16 10	10 55	33 00	22 00	44 00	1 84	
	20	16 45	10 65	33 00	22 00	44 00	1 88	
	21	12 60	7 31	99 00	36 00	75 00	1 44	
	22	9 80	10 65	54 00	31 00	72 00	1 12	
	23	8 75	11 75	48 00	27 50	64 00	1 00	
		77 00	60 69	297 00	158 50	339 00	8 88	

M. LLC
5,6 Co
DATE
Sept

SA 068327

m.LLC

5,6 Con't. 1978 Sept. CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEY	ZEALEY	TITE	NALCO	CAMELWN.
Sept 25	11 70	11 63	36 00	70 50		48 00		124
26	11 70	10 50	33 00	37 50		91 00		112
27	10 70	10 50	33 00	16 50		92 00		112
28	11 73	10 32	21 75	35 38		78 00		122
29	17 20	13 25	2 50	20 00		50 00		156
30	12 95	9 13	11 25	11 25		33 75		146
	74 98	65 33	137 50	91 13		68 63		772

5A 068328

M.U.D

7,8,9. Sept 1978 CHEMICALS USED IN BEATERS

DATE		ALUM	SIZE	CLAY	AWSILEY ZEALEY	TITE	WALCO	CAMEL WH
AUG	28	20 75	16 95	82 35	8700	16300	249	
	29	23 90	20 15	45 45	6000	9900	240	
	30	25 10	22 15	69 45	3550	9500	249	
	31	18 85	19 90	45 00	5500	13750	230	
SEPT	1	12 75	10 15	27 00	3300	87 50	153	
	2	19 25	13 40	47 25	5600	154 50	228	
		120 60	102 70	316 50	326 50	736 50	13 49	
	5	20 50	14 30	78 50	40 00	109 00	240	
	6	18 75	18 70	29 50	11300	157 00	225	
	7	19 50	19 75	60 25	6900	129 50	234	
	8	19 50	19 95	58 50	7620	125 00	234	
	9	13 88	14 85	35 10	26 75	46 85	167	
		92 13	87 55	250 85	324 95	567 35	11 00	
	11	17 00	15 20	82 50	47 00	82 00	198	
	12	18 00	15 20	82 50	49 00	92 00	204	
	13	18 88	18 00	24 75	64 50	164 00	257	
	14	19 25	18 40	36 00	66 50	100 50	231	
	15	21 00	20 05	61 05	72 00	117 50	265	
	16	19 75	11 85	56 55	45 50	61 50	171	
		113 88	98 70	343 35	334 50	617 50	13 26	
	18	18 25	16 35	28 80	39 00	91 50	222	
	19	22 70	18 15	38 70	57 50	130 82	252	
	20	31 80	22 65	76 50	33 50	119 00	309	
	21	21 51	12 91	91 50	48 00	155 25	259	
	22	22 50	21 55	120 00	42 40	101 50	270	
	23	16 00	14 30	60 00	40 00	123 00	192	
		132 76	105 91	415 50	260 40	721 07	15 04	

M.U.D
7,8.9.
LATE
SEPT.

SA 068329

Mill D
7,8.9. Sept. 1978 CHEMICALS USED IN BEATERS

DATE	ALUM	SIZE	CLAY	ANSILEX	ZEALEX	TITE	NALCO	CAMELWH
Sept 25	29 25	25 85	93 75	55 50		153 00	3 00	
26	24 75	18 15	81 90	43 00		122 50	2 34	
27	25 80	19 95	92 10	44 00		135 50	2 70	
28	26 30	19 05	89 85	51 00		130 00	2 79	
29	21 55	19 10	25 08	66 00		151 00	2 19	
30	18 95	16 68	17 25	49 80		108 35	1 63	
	146 60	118 98	399 93	309 30		802 35	4 65	

SA 068330

OCTOBER, 1978 Mill "C" CHEMICALS

DATE	ALUM	3000# CLAY	GAL 962 SIZE	100# 675 CLINTON	ANSILEY	ZEALEY	TITE	100#B STAYSIZE	DFI ACTRA	8 lbs PER GAL C-P 7 FORMSE	PARAN	PARAMEL
OCT 2	700	30000	29 44		17 25		58 50			15	200	
3	750	27000	29 44		30 25		81 50			15	200	
4	700	30000	29 44		21 50		61 50			15	250	
5	850	21000	29 44		14 25		42 75			15	100	145 00
6	1700	18000	29 44		18 50					15	250	298 60
7	10 00	21000	29 44		13 25		27 25			15	200	
9	9 50	30000	21 16		30 00		68 50			—	50	
10	12 00	32000	—		33 50		65 50			—	200	
11	6 00	30000	21 16		35 00		71 00			15	200	
12	7 50	39000	29 44		7 50		5 00				200	
13	11 00	24000	21 16		5 00		12 50			30		197 80
14	7 00	27000	29 44		13 00		27 00			15	150	217 80
16	10 00	27000			25 00		55 50			15	200	300 20
17	11 00	27000	29 44		24 50		56 00			15	150	215 00
18	9 50	30000	29 44		27 00		61 50			15	150	163 00
19	7 50	30000	29 44		57 25		123 00			15	150	
20	5 50	21000	29 44		48 50		133 00			15	50	
21	6 00	21000	58 88		49 00		132 00			15	150	
23	10 00	18000	29 44		28 00		64 00			15	50	232 80
24	7 00	15000	29 44		24 00		56 00			15	100	183 00
25	5 50	18000	29 44		21 00		48 00			15	100	175 00
26	6 50	27000	29 44		24 50		57 00			15	100	231 40
27	9 50	21000	29 44		18 00		39 50			15	150	165 00
28	7 00	39000	29 44		13 00		28 25			15	150	60 00
	205 00	624 00	652 28		599 25		1374 75			330	35 00	2581 60

SA 068331

	# 680	5	753	NITRATE	120
ARAMEL	NAICO	STAYZME	Alum-ON	CLINTON STAYSIZE	Sodium STACOTE
	1.39	140.00	3		
	1.24	81.00	2		
	1.50	122.00	3		
14500	1.54	81.00	3		
29860	1.77				
	1.25	20.00	–		
	1.20	122.00			
	1.56	100.00	5		
	1.32	100.00	–		
	1.32	120.00			
19780	1.68	100.00	4		
21780	1.22	16.00	3		
30020	1.28	62.00	4		
21500	1.20	20.00	5		
16300	1.48	60.00	4		
	.87	60.00	3		
	.88	60.00	2		
	.87	40.00	3		
23280	1.60	82.00	3		
180.00	1.60		3		
17500	1.04	40.00	2		
231.40	1.24	20.00	3		
165.00	1.51	61.00	4		
60.00	1.34		3		
581.60	31.90	1507.00	69		

SA 068332

OCTOBER 1978 120 Mill "D" CHEMICALS

DATE	Alum	GALS SIZE	GAL CLAY	C-P 7 SEPARAN	675 CLINTON	TITE	NALCO	7.2 GALS 100# STAY SIZE	680 NALCO	CLAY COUNTER	SOD. ALUM	STAYZM
OCT. 2		360		4	14400	16100	21			1	1	
3		360		6	6400	14300	6			3	1	
4		480		4	9200	17350	1			1	1	
5		360		6	9600	7500	18			5	1	
6		360		6	9600	10500	12					
7		720		4	11200	7400	1					
9		600		6	14400	10000	30					
10		480		4	8000	12000	27					
11		360		4	11200	10000	2					
12		360		2	12800	11500	1					
13		360		2	14400	11000	45					
14		480		6	8000	9000	1			5	4	
16		480		6	12800	6200	1				2	570
17		480		2	6400	11650	1				4	320
18		480		2	9600	16150						160
19		480		2	9600	16150						
20		360		4	16000	19400	1				2	
21		240		2	8000	10000	18					
23		480			16000	10000	1			10	1	320
24		360			4800	15350	27			1	1	480
25		480			6600	12900	27			3	1	640
26		240			6100	9600	21			2	1	[illegible]
27		480			4800	5600	18			1	1	
28		480		2	8400	11900	1				4	
		10320		66	2383000	281550	281			82	25	[illegible]

SA 868333

Sod ½ Alum	STAYZME B-64	
1		
1		
1		
1		
4		
2	57 00	
4	82 00	
	16 00	
2		
1	32 00	4
1	48 00	2
1	64 00	1
1	69 00	3
1		1
4		1
25	358 00	12

SA 068334

OCTOBER ~~September~~, 1978

MILL "E" CHEMICALS

DATE	CAL AMMONIA	CASEIN	SODA CAUSTIC	TANK H.T. CLAY	COM WHITE	TANK LATEY 636	T.S.P.P.	FORMALDHYC	SATT SOD	PROCOTE PROTEIN	BORAY
OCT 2-4	420	2810	200	50000	262	12600	147	525	1500	6300	
5-6	294	1540		35000	182	8400	108	350	7000	4200	210
9-11	483	2310		55000	273	12000	161	525	2800	6300	315
12-14	462	2420		55000	286	13200	154	550	9000	6600	330
16-18	483	2530		57500	299	11400	161	575	1500	6700	345
19-20	315	1540	50	40000	195	9000	185	375	7500	4500	225
23-25	462	2420		57500	286	13200	154	550	4500	6600	330
26-27	273	1430	100	32500	169	8800	125	325	5700	3900	195
	3192	16500	350	352200	1952	88600	1195	3775	39500	45100	1950

83

x 46%
= 40.756

ultra 1

GRAY	ULTRA-BLUE	NALCO 178	LATEX 620	LATEX 636	RED BYD	NALCO 1467
		45				
210		48				
315	20	76			1	
330		74				
345						
225		45				
330		55				
185		48				
1950	20	386			1	

SA 068336

OCTOBER, 1978 BLADE COATER CHEMICALS

DATE	H.T. CLAY	CAIS Ammonia	CAIS NARCO	DC111 NARCO	DF122 T.S.P.P.	UNITEX	K.U. KEISIN	673 LATEX	CAMELWIN	DENFORD Gum 200	Sodium W.T.	#
OCT. 2	1875	18	30	12	48	102	45	651				
3	2500	24	40	16	64	68	60	868				
4	1948	36	10	10	16	—	15		750			3600
5	1911	30	20	18	6		28		2700	600		
6	611	13	5	12	5		7		600	150		
7	1250	12	20	8	32		30	434				
9-10	3440	36	56	24	98	102	120	1198				
11-12	1880	24	32	16	68		90	495				
13-14	2350	30	40	20	85		150	825				
16	3125	30	40	20	80	136	75	1085				
17-18	6250	66	100	46	125	306	150	2170				
19	3438	43	55	24	113		84	1193	91.00	1000		
20	1875	18	30	12	48		45	651				
23	2830	33	47	24	92		143	985				
24-25	3760	48	64	32	136		240	1320				
26	1880	24	32	16	68		120	660				
27	2345	24	38	16	68	64	75	816				
	43268	509	659	326	1201	778	1477	22351	131.50	1750	3600	

SA 068337

CAIGON T - 16# ATLAS 239-1 10 GALS GATE 46107 - 560#
140#

# DIUM W.T.	GALS SCRIPTSET	PC. 307	STAY SIZE 112	GALS 722 LATEX	GALS NAPCO 10	NAPCO 201	CMC 7-6	620 LATEX	GALS PREZ 707	CELLOGIZE	# BORA 4	# PRECOTE
3600			900	180	7		30	660	23		47	9
				120	9	1		655	15		47	9
					1	5		215	79		15	3
	45	15	900									
	75	40	1500							50		
3600	120	55	3300	300	17	6	30	1530	117	50	109	2

SA 068338

MACH.

;6 MILLC OCT. 1978 PULP USED IN HYDROPULPER

DATE	TOTAL	SUPERIOR	BRUNSWICK	DRYDEN	CEIGAR	NAHEOLA	PRINCE	ALBMARATHON	WIGDAMSEN BY	KAM LOOPS	[illegible]	[illegible]
10-2	123070	41496	66598	14976								
10-3	119343	53352	23773	9360	26432	6426						
10-4	127075				64192	62883						
10-5	951 02				53040	42062						
10-6	170416					19221	32695	118500				
10-7	123305					21114	23138	45030	7568	26455		
	258311	94848	90371	24336	143664	151766	55833	163530	7568	26455		
	379	47	45	12	72	76	28	82	4	13		
10-9	132325					34425			12568	63492	31240	
10	139041					45441				57720	35880	
11	142397				67968	60129				9620	4680	
12	122874				28320	94554						
13	197737				99154	58293		40290				
14	138043			71136	62776	41131						
	892417			2113	258218	296973		40293	12568	130832	62440	
16	125754			46800	48144			30810				
17	95238				25488		15240	54510				
18	160988					12852	45278	103858				
19	96762						43252	64510				
20	90672						24144	66880				
21	81126							49770				
	6505 40			46800	134 32	175 53	1964 16	3493 35				
	325						63	175				
23	164370							116130				
24	151802	35568						30810			80600	
25	107848	45448									62400	
26	122512	122512										
27	98364	20962				22540		26070	3672	20120		
28	88302					51408			36894			
	733198	224490	—	—	—	78948		173010	40566	20120	14300	
	306	112				39		87	20	10	7	
	3014467	319338	90371	142272	475514	540479	182747	726168	607028	177407	205400	
	1507	160	45	71	238	270	91	363	30	89	103	

SA 068339

,89 MILL C OCT. 1978 PULP USED IN HYDROPULPER

DATE	TOTAL	MARATHON	PRINCE ALBERT	BRUNSWICK	AHW	EDDY	PRICE GEO.	CELGAR	NAHCOLA	KAM-LOOP	CRESTBROOK	DRYDE
10-2	2217 48	872 16	865 16	437 36	4280							
10-3	1515 96	113 76	181 08	556 64	85 60	578 88						
10-4	1332 40	161 16				241 20	602 56	188 80	238 68			
10-5	1834 94	37 92		904 54	342 40	128 64	194 88	226 56				
10-6	1671 56			834 96	278 20	257 28		301 12				
10-7	1162 96			397 60	128 40	353 76		283 20				
	9735 30	1185 00	1046 24	3131 10	877 40	1559 76	697 44	999 68	238 68			
	487	59	52	156	44	78	35	50	12			
9	1763 12			616 28	235 40	526 64				384 80		
10	1531 12			397 60	85 60	418 08	519 68			110 16		
11	1801 72		281 68	357 84	192 60	192 96	631 04				145 60	
12	1811 92		464 16	735 56	321 00						291 20	
13	1812 68		120 72	1691 96								
14	2372 64			954 24		96 48			1321 92			
	11093 20		866 56	4753 48	834 60	1234 16	1150 72		1321 92	494 96	436 80	
16	1593 12				64 20	313 56			1215 36			
17	1683 90					554 76			1129 14			
18	1498 14					699 48			798 66			
19	1639 24				214 00	337 68			1087 56			
20	1255 24					120 60			853 74			280
21	1524 96								991 44			533
	9194 60				278 20	2026 08			6075 90			814
	460				14	101			304			4
23	1420 50					723 60			578 34		62 40	5
24	1319 28				64 20	144 72			110 16		936 00	
25	1208 09				117 70					181 08	748 80	
26	980 20				85 60				532 44	362 16		
27	1175 04				267 04				918 00			
+ 28	1305 08				107 00				697 68	362 16		
	7408 18				631 54	868 32			2836 62	905 40	1747 20	56
	370				32	43			142	45	87	-
	37431 28	1185 00	1912 80	7884 58	2621 74	5688 32	1848 16	999 68	10473 12	1400 36	2184 00	870
	1871	59	96	394	131	284	92	50	524	70	109	4

[redacted]

CRESTBANK	Dryden	ASW	Simpson
145 60			
291 20			
436 80			
	280 90		
	533 52		
	814 42		
	41		
62 40	56 16		
936 00		64 20	
748 80		160 50	
			138 24 ✓
1747 20	56 16	224 70	138 24
87	3	11	7
✓2184 00✓	870 58✓	224 70✓	138 24✓
[illegible]	[illegible]	[illegible]	7

SA 068341

7.LLC 5.6 OCT. 1978 CHEMICALS USED IN BEATERS

DATE	Alum	SIZE	CLAY	ANSILEY ZEALEY	TITE	NALCO	CAMWOOD
10-2	1208	664	8350	1725	5995	136	
10-3	1085	942	3400	3075	8150	124	
10-4	1313	714	8475	2138	6150	150	
10-5	1086	947	1237	1313	2700	124	
10-6	1558	1031	675	2175	5125	178	
10-7	1030	945	5625	3000	6650	99	
	7280	5273	27662	13426	34710	611	
9	1320	812	5320	1850	6015	79	
10	1409	1123	7725	3225	6325	138	
11	1155	825	8400	3500	6800	132	
12	1505	828	12525	750	500	172	
13	1470	968	6975	550	1250	168	
14	1068	763	1350	1275	2200	126	
	7927	5319	42295	111 50	23090	615	
16	1185	855	1750	5500		128	
17	1050	785	—	2450	5600	120	
18	1295	980	1200	600	1350	148	
19	830	673	1650	5760	12225	76	
20	805	810	1200	5200	14100	92	
21	770	780	1200	3500	12200	84	
	5935	4853	7000	23010	45975	648	
23	1400	1040	—	2800	6400	160	
24	1400	1035	—	2450	5600	160	
25	840	1350	—	2100	4800	96	
26	1090	810	—	2400	5700	124	
27	1285	841	3975	1455	3160	146	
14708 28	1150	593	8925	1300	2600	134	
	7171	5669	12900	12605	27460	820	
333204	28313	21114	89857	60091	130735	3094	

SA 068342

MILL D 7,8,9 OCT. 1978 CHEMICALS USED IN BEATERS

DATE	Alum	Ro SIZE	CLAY	ANSILEY	ZEALEY	TITE	NALCO	CAMEL WH
10-2	2295	2030	4365	6350		15100	237	
10-3	2180	1925	6855	5450		14100	258	
10-4	2460	2542	4290	5300		10450	258	
10-5	2875	1993	12000	2600		7450	279	
10-6	2385	1823	10500	3800		8200	273	
10-7	2255	1850	11130	2600		6900	237	
	14450	12163	49140	26100		62200	542	
9	2150	1965	12990	3500		5950	258	
10	2275	1765	3885	2204		12800	273	
11	2150	1695	5760	6350		11500	258	
12	2215	1845	6270	8050		13600	261	
13	2400	1920	12330	6100		14550	288	
14	2063	1736	13320	3750		8700	246	
	3253	[illegible]	54550	29154		[illegible]	[illegible]	
16	2755	1645	15330	5400		5750	285	
17	2815	2025	14115	4850		11650	291	
18	1750	1425	9600	5500		14500	285	
19	2125	1515	6720	6400		15250	255	
20	1945	1575	1560	7100		15100	211	
21	2180	1688	11160	2950		7600	251	
	13570	4773	58485	32200		69850	578	
23	2330	1965	13290	3800		9350	267	
24	1870	2185	4710	5100		14250	210	
25	2035	2135	6105	5450		12875	231	
26	1535	1385	3105	6550		8350	174	
27	1706	2045	1200	1800		4700	195	
17738 × 28	1911 ✓	1888 ✓	550 ✓	4025 ✓		11350 ✓	214 ✓	
	11387	11603	28960	26225		60875	1291	
668764	52660 ✓	44465 ✓	191140 ✓	114479 ✓		260025 ✓	5995 ✓	

SA 068343

November 1978 Mill "C" CHEMICALS

DATE	GAL ALUM.	3000# - 6 GAL CLAY-	GAL x 9.2 SIZE	LBS 675 B CLINTON	GAL WAX PARACOL	LBS BAGS x 100 STAZYME-J	LBS. 112 STAYSIZE	LBS Titanium	LBS. Ansilex	GAL. Koch-DeFoamer	GAL CP-7
10-30 78	10 00	360 00	-	-	-	102 00	-	107 50	40 25	15	50
10-31	14 00	210 00	29 44	-	-	60 00	-	123 50	60 50	15	50
11-1	7 00	360 00	29 44	-	-	60 00	-	60 50	26 00	15	-
11-2	12 00	240 00	58 88	-	-	40 00	-	24 00	16 00	15	50
11-3	12 50	240 00	29 44	-	-	40 00	-	18 00	12 00	15	-
11-4	6 50	300 00	29 44	-	-	91 00	-	35 00	21 50	15	50
11-5											
11-6	11 00	390 00	-	-	-	142 00	-	71 50	38 50	15	50
11-7	7 00	210 00	29 44	-	-	60 00	-	48 75	29 50	15	1 00
11-8	8 00	180 00	29 44	-	-	40 00	-	21 00	14 00	15	1 00
11-9	7 50	150 00	58 88	-	-	40 00	-	24 00	16 00	15	1 00
11-10	7 50	210 00	21 16	-	-	40 00	-	23 00	14 00	15	1 00
11-11	5 00	240 00	20 70	-	-	20 00	-	15 00	7 50	15	50
11-12											
11-13	9 00	270 00	20 70	-	75	112 00	-	83 50	41 50	15	1 00
11-14	6 00	270 00	-	-	-	80 00	-	67 50	36 00	15	1 00
11-15	7 50	270 00	20 70	-	-	100 00	-	77 50	41 50	15	1 00
11-16	5 50	225 00	20 70	-	-	85 00	-	71 75	38 50	15	50
11-17	3 50	210 00	20 70	-	-	60 00	-	16 50	10 75	15	25
11-18	5 50	120 00	51 52	-	-	20 00	-	10 50	7 00	15	25
11-19											
11-20	5 50	300 00	20 70	-	-	100 00	-	39 00	28 00	15	-
11-21	5 50	240 00	51 98	-	-	60 00	-	15 00	10 00	15	-
11-22	6 50	240 00	20 70	-	-	60 00	-	105 50	48 50	15	50
11-23	8 00	180 00	20 70	-	-	80 00	-	101 25	45 25	15	50
11-24	8 00	180 00	21 16	-	-	80 00	-	66 50	34 00	15	1 00
11-25	6 50	240 00	20 70	-	-	40 00	-	23 50	8 25	15	1 00
11-26											
	185 00	5835 00	626 52	-	75	1612 00	-	1249 75	645 00	360	14 00

SA 068344

GAL CP-7	LBS. NALCO-680	LBS. PARAMEL	tank ALUM-ON-MACH	* GAL. CLAY-TANK	753 CLINSIZE
50	1.12	-	3	28.00	
50	1.20	-	6	15.00	
-	1.36	-	3	24.00	
50	1.60	324.20	5	15.00	
-	1.60	250.00	5	12.00	
50	1.30	-	2	33.00	
50	1.36	-	6	36.00	
100	1.42	120.00	3	22.00	
100	1.32	255.00	3	17.00	
100	-	310.00	3	16.00	
100	1.60	300.00	3	27.00	
50	1.26	230.00	2	24.00	
100	1.24	-	3	29.00	
100	1.08	-	2	24.00	
100	1.24	-	3	31.00	
50	1.15	-	2	22.00	
25	1.84	310.00	1	18.00	
25	1.48	316.80	2	10.00	
-	1.36	70.00	2	22.00	
-	1.50	246.60	2	29.00	
50	1.08	-	3	23.00	
50	1.25	-	3	15.00	
100	1.36	-	3	12.00	
100	1.31	-	2	16.00	
1400	31.03	2732.60	72	520.00	

1272450
1292190

SA 068345

November 1978 — Mill "D" Chemicals

DATE	120 x tank SIZE GAL	C-7 GAL	J LBS. 100# Bag	100# BAG CLINCO 55	50# BAG Titanium	71-M GAL NALCO	CLAY COUNTER	SODIUM ALUMINATE	B 64 Alum
10-30-78	480	4	1440 00	2200 00	1800				
10-31	720	5	1600	9400	10000	18			
11-1	480	5		1120 00	1200 00	21			
11-2	360	1		9600	10500	18			
11-3	240	1		8000	12000	24			
11-4	360	2		4500	17500	27	2	1	
11-5									
11-6	720	3	200	12800	15850	1			
11-7	720	2	1600 00		16800				
11-8	840	2		11200	26900			2	
11-9	960	2		9600					
11-10	720	1		12800	18900	1			
11-11	240	1		4800	16050	12	1	1	
11-12									
11-13	480		3200	16000	21550	1	2	1	4
11-14	240			4800	18700	40	1	1	2
11-15	240			11200	15800	15	3	1	1
11-16	360			8000	13000	9	3	1	3
11-17	480			12800	13000	6	1	1	2
11-18	480			4800	9450				2
11-19	480			20800	13000	33			3
11-20									
11-21	360			12800	11000	76			2
11-22	480			12800	11500	72			1
11-23	480			12800	10000	42			2
11-24	360			11200	11000	40			2
11-25	240			1600	15900	1	2	1	2
11-26									
5157	11520 ✓	29 ✓	35400 ✓	245500 ✓	322200 ✓	457 ✓	15	10 ✓	26

SA 068346

November 1978 Mill "E" CHEMICALS COPY

DATE	SOY FLOUR	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX-DOW 636 TANK	LATEX-DOW 636 Drum	T.S.P.P	ULTRAMARINE BLUE	PAREZ RESIN
Oct. 30-31-1			23.10	550.00	2.73		126.00		1.47		
2-3-4			22.00	500.00	2.60			120.00	2.20		
6-7-8			25.30	575.00	2.99			138.00	1.61		
9-10-11			25.30	600.00	2.99		24.00	97.00	2.11		
13-14-15			22.00	500.00	2.60		102.00	30.00	1.40	30	
16-17-18			24.20	555.00	2.86		132.00		1.54	20	
20-21-22			23.10	525.00	2.73				1.52		
			165.00	3805.00	19.50		384.00	385.00	11.85	50	
			✓	✓	✓		✓	✓	✓	✓	

SA 068347

PAREZ RESIN	RED BXP	GAL Ammonia	SALT	BORAX	GAL. NOPCO #178	# FORMALYDEHYDE	# PRO COTE PROTEIN	LATEX DON 620 DRUMS	STALEY STACOTE 120	DYLEX LATEX
		4.41	35.00	3.15	51	5.25	63.00			
		4.20	100.00	3.00	65	5.00	60.00			
		4.83	70.00	3.45	70	5.75	69.00			
		4.83	75.00	3.45		5.75	69.00			
	1	3.70	100.00	3.00	62	5.00	60.00			
		2.62	60.00	3.30	62	5.50	66.00			
		4.41	70.00	3.15		5.25	63.00			
	1	29.00	530.00	22.50	3.10	37.50	450.00			
				✓	✓	✓	✓			
		31083 ✓	[illegible]							

SA 068348

Mach 5, 6
Mill C
November 1978 Pulp Used In Hydropulpee

DATE	DRYDEN SEMI BI	Nahoola	Marathon	Superior	Pr. George	Celgar	CRESTBROOK	BRUNSWICK	Westvaco	EDDY	Total
10-30 78	461 76	216 67	211 56								389 99
10 31	144 30	152 13	531 36	186 12	165 24						11 9 15
11-1		603 91	14 76		474 30						1073 97
11-2			49 20		523 26	1084 60					1657 06
11-3		46 10			137 70	1176 00	255 36	100 40			1115 56
11-4							478 80	873 48			1352 28
	606 06	1018 81	806 88	186 12	1300 50	2260 60	734 16	973 88			7887 01
11-6 78		82 98					414 96	336 34			834 28
11-7		562 42				700 80	319 20				1582 42
11-8			836 40			374 40					1210 80
11-9			418 20	434 28							852 48
11-10			1033 20	775 50							1808 70
11-11				1395 90							1395 90
	—	645 40	2287 80	2605 68	—	1075 20	734 16	336 34			7684 58
11-13		341 14		82 72							423 86
11-14		262 77		82 72							345 49
11-15		179 79		113 74					42 12		335 65
11-16		27 66		93 06					123 12		243 84
11-17				180 95		1104 00			55 08		1340 03
11-18				25 85		1056 00			51 84		1133 69
	—	811 36	—	579 04	—	2160 00	—	—	272 16		3822 56
11 20				25 85			553 28		162 00		741 13
11-21	132 44			25 85			452 20		42 12	486 00	1138 61
11-22	425 70	4 61							97 20	48 60	576 11
11-23	375 18	613 13				24 65				16 20	1029 16
11-24		576 25	123 00			48 00					747 25
11-25		110 64	639 60			254 40	63 84				1068 48
11-26											
	933 32	1304 63	762 60	51 70	—	327 05	1069 32	—	301 32	550 80	5300 74
	1539 38	37 20	3857 28	3422 54	1300 50	5822 85	2537 64	1310 22	573 48	550 80	24694 89
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

SA 068349

Mach 7, 8, & 9
Mill D
November 1978

Pulp Used In Hydropulper

DATE	Superior	Kamloops	Simpson	Nahoela	Marathon	Crestbrook	Gd Prairie	Allied SW	Westvaco	George Prince	Total	Illied
10-30-78	682 44	115 44	52 80	165 96	118 08						1134 72	
10-31	206 80	654 16	—	184 40	413 28						1458 64	
11-1	155 0			74 33							739 73	
11-2	692 78			599 30							1292 08	
11-3	237 82			488 66							1492 12	4
11-4				442 56		255 36					1038 48	
	1889 24	769 60	52 80	1355 21	531 31	255 36	—	—	—	—	[illegible] 37	14
11-6				608 52	59 04	702 24					2227 16	6
11-7					177 12	91 60					268 72	
11-8						500 08	470 40	715 68			1686 16	
11-9					186 96	443 16	604 80	178 92	177 48		1591 32	
11-10					186 96	308 56	470 40		524 88	55 08	1545 88	
11-11				331 92	118 08	255 36	470 40		183 60		1359 36	
	—	—	—	940 94	728 06	2307 06	2016 00	894 60	885 96	55 08	8678 60	6
11-13	124 08			55 32	265 68	180 88	336 00		1062 72		2153 08	128
11-14	310 20					372 40	537 60		557 28		2034 28	25
11-15	465 30				68 88	53 20	537 60		375 84		1673 62	
11-16	372 24				78 72		537 60		414 72		1576 08	
11-17	372 24				39 36		403 20		596 16		1583 76	
11-18	289 52					255 36	336 00		259 20		1283 28	8
	1933 58	—	—	55 32	452 64	861 84	2688 00	—	3265 92	—	10304 10	47
11-20	372 24			331 92		872 48		59 64		36 72	1780 00	10
11-21	248 16			746 82						633 42	1[illegible]28 40	
11-22		134 68		202 84			134 40				815 72	
11-23				1023 42						409 62	1679 14	24
11-24		346 32		617 74						422 28	1614 34	
11-25		865 80		221 28			134 40				1335 48	
11-26												
	620 40	1346 80	—	3144 02	—	872 48	268 80	59 64	—	1502 04	8853 08	35
	4528 92	2116 40	52 80	6094 99	1712 16	4290 68	4972 80	954 24	4151 88	1557 12	34991 55	3

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Total	Allied HW	Celgar	Dryden	Brunswick	Eddy	Port Hudson
1134 72						
1458 64						
739 73					510 30	
1292 08						
1492 17	149 80		227 04		388 80	
0 38 48			340 56			
1 33 37	149 80	–	567 60	–	899 10	–
2227 16	64 20			793 16		
268 72						
686 16						
591 32						
1545 88						
359 36						
078 60	64 20	–	–	793 16	–	–
2153 08	128 40					
2034 28	256 80					
1673 60		172 80				
1576 08		172 80				
583 76		172 80				
283 28	85 60	57 60				
3304 10	470 80	576 00	–	–	–	–
1780 00	107 00					
28 40						
815 72		172 80				171 00
1679 14	246 10					
1614 34						228 00
1335 48						114 00
853 08	353 10	172 80	–	–	–	513 00
499155	1037 90	748 80	567 60	793 16	899 10	513 00
	✓	✓	✓	✓	✓	✓

SA 068351

Mill C 5,6 Nov. 1978 CHEMICALS USED IN BEATERS

DATE	Alum.	Size	Clay	Ansilex	Scm	Nalco 680	Titanium	Zealex	Total
10-30 78	9.81	7.47	32.00	40.25		1.12	107.50		198.15
10-31	10.50	9.86	29.50	60.50		1.20	135.50		247.06
11-1	11.90	7.55	60.00	26.00		1.36	66.50		167.31
11-2	14.00	12.26	9.00	16.00		1.60	24.00		76.86
11-3	25.03	20.34	105.00	33.50		2.86	53.00		239.73
11-4	—	—	—	—		—	—		—
	71.24	57.48	235.50	176.25	—	8.14	380.50		929.11
11-6	11.90	6.83	91.50	38.50		1.36	71.50		221.59
11-7	12.43	10.39	48.00	29.50		1.42	48.75		150.49
11-8	11.55	8.23	10.50	14.00		1.32	21.00		66.60
11-9	14.00	10.40	12.00	16.00		1.60	24.00		78.00
11-10	14.00	10.83	15.50	14.00		.36	23.00		77.69
11-11	11.03	8.59	15.00	7.50		1.26	15.00		58.38
	74.91	55.27	192.50	119.50	—	7.32	203.25		652.75
11-13	10.85	7.25	62.00	41.50		1.24	78.50		201.34
11-14	9.45	6.30	54.00	36.00	67.50	1.08			174.33
11-15	10.85	7.25	62.00	41.50		1.24	77.50		200.34
11-16	10.07	6.73	57.50	38.50	71.88	1.15			185.83
11-17	16.10	16.56	19.00	10.75		1.84	16.50		80.75
11-18	12.95	17.55	14.00	7.00	10.50	1.48			63.48
	70.27	61.64	268.50	175.25	149.88	8.03	172.50		906.07
11-20	11.90	10.25	44.00	28.00	15.00	1.36	24.00		134.51
11-21	13.13	16.31	20.00	10.00	15.00	1.50			75.94
11-22	9.45	8.75	42.00	48.00	45.50	1.08	40.00		195.28
11-23	10.94	8.24	60.78		72.75	1.25	28.50	45.13	227.59
11-24	11.90	7.95	31.50		66.50	1.36		34.00	153.21
11-25	11.47	7.39	65.50	28.75		1.31		8.25	122.67
11-26									
	68.79	58.89	263.78	115.25	214.75	7.86	92.50	87.38	909.20
	285.21	233.28	960.28	586.25	364.63	31.35	848.75	87.38	3397.13
		✓	✓	✓	✓	✓	✓	✓	

SA 068352

Mill D 7,8+9 Nov. 1978 CHEMICALS USED IN BEATERS

	Alum.	Size	Clay	Ansilex	Titanium Scm	Nalco 680	Ax-Titan	Titanium Tipre	Wite Camel	Calcium Carbonate	TOTAL	Titan
10-30 78	20 33	17 33	30 25	75 75	194 50	2 30					340 46	
10-31	21 85	19 93	13 00	54 50		2 31	90 00	53 50			255 09	
11-1	19 85	16 95	36 00	71 50		2 22	172 50				319 02	
11-2	16 35	16 13	21 80	77 00	54 00	1 95	153 00				340 23	
11-3	14 50	25 93	33 10	69 00	171 50	1 89	72 50	20 00			408 42	
11-4	18 19	14 91	32 95	67 35	165 25	2 10					300 75	
	111 07	111 18	167 10	415 10	585 25	12 77	488 00	73 50	-	-	1963 97	
11-6 78	24 50	19 51	41 70	70 00	151 50	2 55	14 00				323 76	
11-7	23 50	43 38	47 50	77 50	168 00	2 55					362 43	
11-8	21 38	23 28	13 25	86 75	268 00	2 55					415 21	
11-9	20 13	27 43	36 00	107 25	169 50	1 86					362 17	
11-10	20 25	21 20	30 20	85 00	189 00	2 43					345 08	
11-11	15 38	23 35	1 00	69 00	155 75	1 85					266 33	
	125 14	158 15	169 65	495 50	1101 75	13 79	14 00	-	-	-	2077 98	
11-13	20 00	22 55		90 50	168 50	2 40	22 00			10 00	346 95	
11-14	15 60	14 20	8 50	87 00	138 50	1 68	18 00			43 50	350 48	2
11-15	28 80	20 95	43 00	85 50	151 50	2 58					332 33	
11-16	27 35	20 15	55 50	67 50	127 00	2 49					299 99	
11-17	28 25	21 58	43 50	73 00	152 00	3 84					322 17	
11-18	22 50	17 37	44 58	43 80	93 00	2 04					223 29	
	142 50	116 80	195 08	447 30	830 50	15 03	40 00	-	-	58 50	1869 21	2
11-20	30 73	23 96	49 25	79 50	134 00	2 87					320 31	
11-21	26 88	20 95	62 00		136 00	2 67					320 00	
11-22	29 20	23 17	80 00		94 50	2 94					283 31	
11-23	29 40	25 50	41 72		70 00	3 06					213 68	
11-24	21 13	43 10	37 30		40 00	2 54					165 07	
11-25	13 51	15 02	16 20	22 50	154 25	1 63					267 61	
11-26												
	150 85	151 70	288 47	102 00	628 75	15 71	-	-	-	-	1571 98	
	529 56	537 83	820 30	1459 90	3146 25	57 30	542 00	73 50	-	58 50	7483 14	
	✓	✓	✓	✓	✓	✓	✓	✓		✓		

[redacted]

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TOTAL	(3) Titanium Zealex	
34046		
25509		
31902		
34023		
40842		
30075		
196397		
32376		
36243		
41521		
36217		
34808		
26633		
207798		
34095		
35048	2350	
33233		
29999		
32217		
22329		
186921	2350	
32031		
32000		7150
28331		5350
21368		4400
16507		1900
26961		4650
157198		23450
748314	2350 ✓	23450 ✓

SA 068354

BLADE COATER CHEMICALS

November 1978

DATE	LATEX 673 gal	D. ramper # D7-122	stearate gal DC-111	KELGEN HV #	TSPP #	CLAY gal HT WET	gal AMMONIA	UVITEX #	CAMEL WITE #	LATEX 6107 gal	[illegible] 208 #	[illegible] 14 B
10 30 78	868	16	40	60	64	2500	24	136				
31	1085	20	50	75	80	3125	30	170				
11-2+3	4340	102	220	300	335	17424	178	442	2600	560	600	
1	868	16	40	60	64	3863	54	136	750			
4-6	1953	36	90	135	144	5625	54	170				
7-8	2507	12	30	45	63	1875	18		400			
9	1519	28	70	105	112	4375	42					
10	1302	24	60	90	96	3750	36					
11	1085	20	50	75	80	3125	30	136				
13	1302	34	60	90	121	3750	48					
14	868	28	40	60	94	2500	36	34	13650		300	
15	434	8	20	30	32	1250	12	34				
16-17	2170	40	100	150	160	6250	60	340				
18	1085	20	50	75	90	3125	30	170				
20	1085	20	50	75	90	3125	30	170				
21	868	16	40	60	64	2500	24	136				
22	1302	24	60	90	96	3750	36	204				
23-25	3689	68	170	255	272	10625	102	238				
	28330	532	1240	1830	2057	82537	844	2516	17400	560	900	
								✓	✓	4889		
	245054#	✓	10143	✓	✓	825370	6136			✓		
	✓		✓			✓	✓					

SA 068355

DG-208 #	PENCORE 74-B #	STAYSIZE 112 #	CLINSIZE 173-B #	NOPCOCIDE 120	NOPCOCIDE K gal.	CALGON T #	GLYCER-INE #	CELLO-SIZE	CELLU-LOSE CMC-7 #	SCRIPTEX 720 gal	TC-807	ATLAS 239
600		100	5500		6	16			60	165		
					7							
			1200									
			1500							75	25	
300	1200		1800		15		120	75		90	30	10
900	1200	100	100 00		28	16	120	75	60	330	55	10
	✓	✓	✓		280 ✓	✓	✓	✓	✓	749 ✓	425 ✓	100 ✓

SA 868356

	620 gal LATEX	722 LATEX gal	D7	122NS #	BORAX #	LV # PROTEIN-	SODIUM # NITRATE	PREZ 707 gal	HT CLAY DRY
10									
1									
-3	865	60		16	61	1264	4800		21
1	660	180		8	57	936			
-6									
8	864	60			61	1250	4800		21
0									
11									
3									
4									
5									
17									
	2389	300		24	179	3450	9600		42
	20665	2595 ✓		175 ✓	✓	✓	✓		420

5A

068357

DECEMBER 1978 Mill "C" CHEMICALS LBS.

DATE	GAL ALUM.	300ml-tank CLAY	GAL x 92 SIZE	675B LBS. CLINTON	GAL WAX PARACOL	BAGS x 100 STAZYME-Z	112 LBS STAYSIZE	LBS Titanium	LBS Ansilex	KOCH- GAL Defoamce	GAL CP-7
11 27 78	11 00	510 00	31 28	-	-	120 00	-	53 50		15	1 50
28	6 00	240 00	51 98	-	-	40 00	-	20 00	10 00	15	1 00
29	9 50	270 00	32 20	-	-	40 00	-	20 00	10 00	15	1 00
30	6 50	300 00	64 40	-	-	40 00	-	17 00	10 00	15	1 00
12-1	9 50	450 00	32 20	-	-	60 00	-	30 50	16 50	15	1 00
2	5 50	270 00	32 20	-	-	40 00	-	27 25	15 50	15	50
3											
4	8 50	420 00	32 20	-	-	100 00	-	38 25	20 00	15	1 00
5	7 50	240 00	-	-	-	80 00	-	105 50	49 00	15	1 00
6	10 50	210 00	52 90	-	-	63 00	-	79 50	33 50	15	1 50
7	6 00	90 00	20 70	-	-	39 00	-	73 50	30 00	15	50
8	8 00	180 00	20 70	-	-	70 00		89 50	41 50	15	1 00
9	4 00	150 00	20 70	-	-	28 00		73 50	34 75	10	50
10											
11	7 50	240 00	20 70	-	-	112 00	-	103 50	51 00	15	1 00
12	7 00	180 00	29 90	-	-	56 00	-	103 50	51 00	15	1 00
13	7 50	210 00	20 70	-	-	84 00	-	87 00	41 50	15	50
14	6 00	270 00	29 90	-	-	72 00	-	70 50	29 75	15	00
15	5 00	150 00	20 70	-	-	42 00		19 00	9 50	15	1 00
16	6 00	150 00	20 70	-	-	12 00		20 50	9 00	10	1 00
17											
18	7 50	120 00	20 70	-	-	108 00	-	25 50	14 00	15	50
19	6 00	90 00	20 70	-	-	56 00	-	87 00	43 50	15	1 00
20	5 50	240 00	20 70	-	-	70 00	-	64 00	31 25	15	1 00
21	5 00	240 00	20 70	-	-	56 00	-	72 50	36 00	15	1 00
22	5 50	90 00	20 70	-	-	28 00	-	35 00	17 50	15	50
23	4 50	60 00	20 70	-	-	-	-	30 00	5 00	10	1 00
26	8 00	270 00	20 70	-	-	152 00	-	66 00	28 00	15	50
27	4 00	270 00	20 70	-	-	84 00	-	71 50	27 75	15	1 00
28	6 00	180 00	20 70	-	-	42 00	-	68 50	32 00	15	1 00
29	6 00	165 00	20 70	-	-	42 00	-	45 00	22 50	15	1 00
30	9 50	90 00	20 70	-	-	-	-	27 50	13 75	10	50
	199 00	634 500	761 76	-	-	1736 00	-	1627 50	737 75	415	2600

5A 068358

GAL. P-7	LBS. UNICO-680	LBS. PARAMEL	TANK ALUM-ON-MACH.	GAL. CLAY-TANK	LBS. ZEOLEX	753 CLINSIZE	BAGS SODIUM NITRATE
150	149	6600	4	2100	2400		
100	176	29060	2	900			
100	176	30740	4	2900			
100	144	30700	2	3000			
100	136	8140	3	3000			
50	94	-	2	2200			
100	118	-	3	5000			
100	150	-	3	2200			
150	144	39000	2	1900			
50	176	33440	2	1300			
100	136	8000	3	2400			
50	82		1	2100			
100	132	-	3	1900			
100	132		2	2400			
50	142	-	3	2300			
100	162	-	3	2800			
100	144	27360	1	2000			4000
100	112	23800	2	1700			
50	152	26640	3	1000			
100	132	1100	2	2200			
100	130	-	2	2400			
100	128	-	2	2600			
50	160	34300	2	700			
100	128	24960	2	700			
50	120		3	4900			
100	138		1	4700			
100	144	17790	73	3300			
100	144	32380	1	1600			
50	126	32860	5	900			

155893

SA 068359

DECEMBER 1978 x120 Mill "D" CHEMICALS x100 CLINTO 6.75 100 -2 17 tank = 55 gal

DATE	120 x tank SIZE GAL	C-7 GAL	J LBS 100# Bag	100# BAG CLINCO 55	50# BAG Titanium	71-M NALCO GAL	CLAY COUNTER	SODIUM ALUMINATE	B-64 GLUE
11-27 78	7 20	1		208 00	207 50	55		1	2
28	7 20	3		78 00					
29	7 20	2		112 00				2	
30	7 20	2		64 00		55		2	
12-1	7 20	2		48 00	78 00				
2	2 40	1		32 00	100 00	6			
3									
4									
5	3 60	3		80 00	115 00	10	5	1	
6	3 60	2		96 00	166 50	18	4	1	
7	3 60	3		128 00	177 50	18	4	1	
8	3 60	2		80 00	195 50	24	2	1	
9	7 20	1		16 00	197 00			2	
10									
11	3 60	3		144 00	115 00	55			
12	3 60	3		96 00	105 00	30			
13	3 60	2		134 00	100 00	24	9	1	
14	2 40	3		128 00	100 00	55			
15	4 80	2		192 00	113 00	42			
16	3 60	3		112 00	135 00	72	15	1	
17									
18	3 60	2		144 00	110 00	21			
19	3 60	3		64 00	115 00	30			
20	3 60	2		112 00	115 00	32			
21	3 60	2		112 00	113 00	30			
22	3 60	2		112 00	100 00	55			
23	7 20	2		48 00	79 00				
26	4 80	3		208 00	100 00	55			
27	3 60	2		128 00	110 00	24			
28	3 60	2		112 00	205 00	55			
29	4 80	1		144 00	100 00	36			
30	4 80	2		96 00		55		5	
	128 40	61	-	3022 00	3052 00	857	39	18	2
	199 00	6343 00	761 76						

SA 068360

Mill "E" CHEMICALS

DECEMBER 1978

DATE	SOY FLOUR	H.T. CLAY	CASEIN	H.T. CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX DOW 636 TK.	LATEX DOW 636 Drum	T.S.P.P.	ULTRAMARINE BLUE	THREE RESIN	RED BAP
27-28+29	-	-	24.20	550.00	2.86	-	12.00	-	1.54	-	-	-
30+1	-	-	17.60	450.00	2.08	.50	-	-	1.37	.20	-	-
1-5+6	-	-	24.20	550.00	2.86	-	108.00	-	1.54	-	-	-
7+8	-	-	17.60	400.00	2.08	-	96.00	-	1.12	.20	-	-
11-12+13	-	-	25.30	575.00	2.99	.50	138.00	-	1.61	-	-	-
14-15+16	-	-	26.40	600.00	3.12	1.00	144.00	-	2.40	-	-	-
18-19+20	-	-	25.30	600.00	2.86	-	126.00	-	1.61	-	-	-
21+22	-	-	18.70	450.00	2.21	-	108.00	-	1.75	-	-	-
26+27	-	-	16.50	375.00	1.95	-	96.00	-	1.15	-	-	-
28+29	-	-	13.20	400.00	-	-	94.08	-	2.10	-	-	-
	-	-	209.00 ✓	4950.00 ✓	23.01 ✓	2.00 ✓	922.08 ✓	-	16.19 ✓	.40 ✓	-	-
							48%					
							442.60					

SA 068361

CAREZ CSIN	RED BXP		GAL Ammonia	SALT	BORAX	GAL NOPCO #178	# FORMALY-DEHYDE	# PRO COTE PROTEIN	LATEX DON 620 Drum	Stanley Stancote 120	DYL-X LATEX	UNION LATEX
-	-		462	7500	330	70.	550	6600	-	-	-	12000
-		15	336	4000	240	48	400	4800	-	-	-	7600
-	-		462	6500	330	67	550	13200	-	-	-	2400
-		1	336	1000	240	46	400	4800	-	-	-	-
-	-		483	8000	345	68	575	6900	-	-	-	-
-	-		504	7500	360	69	600	7200	-	-	-	-
-	-		462	2800	330	211	550	6600	-	-	-	-
-	-		378	7500	315	79	450	5100	-	-	-	-
-	-		315	7500	225	60	375	4500	-	-	-	-
-	-		315	-	240	46	-	-	-	-	-	-
-		16	4033	52300	2955	764	4450	59700	-	-	-	24000
												11520

Expense

SA 068362

Mach. 5 & 6
Mill C
DECEMBER 1978

Pulp Used In Hydropulper

DATE	Dryden Semi Bl.	Nahola	Marathon	Superior	Pr. George	Celgar	Crestbrook	Brunswick	Westvaco	Kamloops	Total
	481	462	487	307	467	477	520	489	327	481	
11-27-78			45				120			151	316
28							114			266	380
29				215						72	467
12-1-78		32									191
2		23		16							127
	–	(25410) 55	(21915) 45	(11117) 231	–	–	(12680) 234	–	–	(235209) 489	1421
4		39		62							101
5		216	45	24							285
6			180	132							312
7			85	138		150					373
8			84	138		117					339
9			96	102							198
	–	(117810) 255	(238630) 490	(302172) 596	–	(127554) 267	–	–	–	–	1608
11			198	162							360
12			186	144							330
13			144	132							276
14	9	36	91	111							247
15	42		33			165					258
16						150					228
	(24531) 51	(116632) 36	(317524) 652	(278243) 549	–	(150225) 315	–	–	–	–	1699
18						150	85				313
19		168									252
20	10	102	50								252
21			175				10				269
22							245				317
23							196				262
	(4810) 10	(124740) 270	(109575) 225	–	–	(7550) 150	(275600) 530	–	–	–	1665
26	4		30				165				257
27			180								242
28			180								276
29			50			140					292
30			90			105					249
31	(3848) 8	–	(258110) 530	–	–	(116865) 245	(85800) 165	–	–	–	1316
	69	616	1942	1376	–	977	929	–	–	489	7709
	331 89	284592	945754	697632	–	466029	483080	–	–	235209	

L.2 # of units

38.5

SA 068363

sales

Total	397 DRYDEN & B.	587 Ad PRAIRIE	377 EDDY
316			
380			
407		120	
191		144	15
127		78	10
1421	-	(200754) 342	25
101			
285			
312			
373			
339			
198			
1608	-	-	-
360			
330			
276			
247			
258		18	
228		78	
1699	-	(56352) 96	-
313		78	
252		84	
252		90	
269		84	
317	72		
262		72	
1665	(28584) 72	(239496) 408	-
257		58	
242		58	
276		96	
292		102	
249		54	
1316	-	(216016) 368	-
7709	72	1214	25
	28584	7121 18	99 25

SA 068364

Mach 7, 8, + 9

December 1978 — Pulp Used In Hydropulper

DATE	Superior	Kamloops	Simpson	Nahocla	Marathon	Crestbrook	Gd. Prairie	Allied SW	Westvaco	Prince George	Total
	507	481	397	462	487	520	587	500	327	467	
11-27-78	12			44	24		84				3.00
28	24	1.26		144							2.94
29	228			72	34						3.50
30		228		48							2.76
1		196		76							2.76
2	76	1.24		112							3.12
	(172380) 3.40	(324194) 6.74	–	(229152) 4.96	(28246) 58	–	(49308) 84	–	–	–	18.08
4	216			144							3.60
5	164			112				20			3.08
6	200							160			3.60
7	152							156			3.16
8	120							204			9.24
9	60				36			36			1.32
	(462384) 9.12	–	–	(118272) 2.56	(17532) 36	–	–	(288000) 5.76	–	–	18.00
11	204			44							2.64
12	168	36		56							2.64
13		152		148				24			3.24
14		88						242			3.48
15		96						216			3.18
16		60		180			36	12			3.30
	(188604) 3.72	4.32	–	(197736) 4.28	–	–	(21132) 36	(247000) 4.94	–	–	18.78
18							72	132			3.88
19							96	24			3.36
20						1.74	84				3.84
21						1.12	72				3.84
22						76	72				3.00
23						76	72				3.00
						24	36				1.20
	–	(12886) 6	–	(11088) 24	–	(240040) 462	(1253584) 432	(78000) 156	–	–	16.56
25											
26		54			12	12					2.88
27		132		144	96						4.08
28		270		18							3.96
29		42		66						168	3.00
30				90							2.40
31	–	(268398) 5.58	–	(140916) 3.18	(52596) 08	(6240) 12	–	–	–	(784956) 168	16.32
	823368 16.24	803270 16.70	–	703164 15.22	98374 2.02	246480 4.74	3240024 5.52	613000 12.26	–	784956 1.68	87.74

Allied

(123784

(19140

(38164

(23365

117146

SA 368365

Total	477 Allied HW	477 Celgar	377 Dryden 7B	489 Brundswick	397 Eddy	481 Dryden Semi Bk	475 Port Hudson	434 Fort Frances	462 Missoula	512 Nobal
300	68	68								
294										
350		16								
276										
276	4									
312										
1808	(35784) 72	(40068) 84	-	-	-	-	-		-	-
360										
308	12									
360										
316	8									
324										
132										
1800	(9940) 20	-	-	-	-	-	-	-	-	-
264							16			
264							4			
324										
348			18							
348								36		
330								18		
1878	-	-	(16674) 24 42	-	-	-	(9500) 20	(23436) 54	-	-
288			60					64		
336	62									
308	48									
284	68							68		
300	76							76		
120	24							30		
1656	(138166) 278		(23820) 60					(103292) 238	-	-
288	48	48			90			24		
408		24			12					
396									24	84
300										24
240		42			48					
1632	(23856) 48	(54378) 114	-	-	(59550) 150	-	-	(10416) 24	(11088) 24	108
8774	1746 118	21446 198	1194 [illegible]	-	19550 150	-	9500 20	127144 [illegible] 16	11088 24	55296 108

SA 068366

Mach. 5+6

DECEMBER 1978 — gal. Chemicals ② Used In ① Beaters

DATE	Alum. #	Size #	CLAY	Ansilex	SCM	Nalco 680	Titanium	Zealex	TiPure ③		Total
11-27 78	13 04	10 74	64 50	14 50	49 00	1 49	4 50	10 00			167 77
28	15 40	18 88	25 00	10 00		1 76	20 00				91 04
29	15 40	16 50	25 00	10 00		1 76	20 00				88 66
30	12 60	14 50	25 00	10 00	17 00	1 44					80 54
12-1	11 90	12 88	58 50	16 50	16 50	1 36	14 00				131 64
2	8 23	6 81	70 50	15 50	27 25	94					129 23
	76 57	80 31	268 50	76 50	109 75	8 75	68 50	10 00			688 88
4	10 33	7 96	81 50	20 00	38 25	1 18					159 22
5	13 13	7 63	67 00	49 00	102 75	1 50	3 00				244 01
6	12 60	8 00	17 00	33 50	79 50	1 44					152 04
7	15 40	10 40	1 20	30 00	73 50	1 76					132 26
8	11 90	7 95	39 00	41 50	66 00	1 36	23 50				191 31
9	7 18	4 65	30 25	34 75	73 50	82					151 15
	70 54	46 59	235 95	208 75	433 50	8 06	26 50				1029 89
11	11 55	7 65	48 00	51 00	54 00	1 32	–	–	49 50	–	223 02
12	11 55	7 65	48 00	51 00	–	1 32	12 00	–	31 50	–	223 02
13	12 43	7 54	54 50	41 50	–	1 42	–	–	87 00	–	204 39
14	13 83	7 17	64 00	27 25	–	1 58	60 00	–	4 50	–	178 33
15	12 61	8 86	23 00	9 50	–	1 44	–	–	19 00	–	114 41
16	9 80	7 75	–	9 00	–	1 12	–	–	30 50	–	118 17
	71 77	46 62	237 50	189 25	54 00	8 20	132 00	–	212 00	–	951 34
18	13 30	13 01		14 00		1 52	23 00		3 50		70 33
19	16 55	7 18	3 00	43 50		1 32	87 00				153 55
20	16 63	7 31	43 00	38 25	3 50	1 22	38 50				134 46
21	14 28	7 01	50 00	30 00	72 50	1 28					171 [illegible]
22	14 28	16 88		17 50	30 00	1 60					78 [illegible]
23	11 20	8 75		13 00	30 00	1 28					66 23
	71 93	54 14	96 00	150 25	141 00	8 22	170 50	–	3 50	–	695 54
25	=										
26	10 50	8 38	47 00	28 00	66 00	1 20					161 08
27	12 08	7 44	60 50	27 75	71 25	1 38					182 40
28	12 15	10 75	29 00	32 00	68 50	1 44					153 84
29	12 60	12 38	9 00	22 50	45 00	1 44					102 92
30	11 38	28 38	5 50	13 75	27 50	1 30					87 81
31	58 71 ✓	69 33 ✓	151 00 ✓	124 00	278 25	6 76	–	✓ –	–	–	688 05
	349 52	296 99	988 [illegible]	748 75	1016 50	39 99	387 50	10 00	215 50	–	4053 70

SA 068367

Mach. 7,8,+9
Mill D
DECEMBER 1978

CHEMICALS USED IN BEATERS (2)

DATE	Alum	Size	CLAY	Ansilex	(TITANIUM) SCM	NALCO 680	Ax	(Titanium) Tipre	Camel Wite	CALICUM CARBONATE	TOTAL	Titani
11 27 78	20 50	21 00	21 40	107 00	177 00	2 46	-	-	-	-	370 36	21
28	25 95	25 33	41 80	62 00	-	2 76	-	139 40	-	-	297 24	
29	20 60	17 55	40 80	89 00	78 50	2 43	-	114 50	-	-	363 38	
30	20 65	14 75	46 90	56 50	124 50	2 19	-	-	-	-	265 49	
12-1	21 05	15 31	74 80	26 50	75 50	2 19	-	-	-	-	215 35	
2	18 78	13 93	49 00	13 00	46 38	2 18	-	-	-	-	143 27	
	127 53	107 87	274 70	354 00	501 88	14 21	-	253 90	-	-	1655 09	2
4	31 20	21 78	38 00	18 00	61 25	2 67	-	-			172 90	
5	23 55	23 10	58 00	43 00	33 00	2 61	-	61 50			244 96	
6	23 15	20 63	64 00	70 00	10 50	2 37	-	147 75			338 42	
7	18 69	20 68	43 15	72 00	36 00	2 24	-	126 50			309 26	
8	23 20	27 35	3 60	89 50	141 50	2 46	-	46 00			333 61	
9	11 91	16 16	4 50	48 25	92 75	1 20	-	-			174 77	
	131 70	129 70	211 25	340 75	365 00	13 55	-	381 75	-	-	1573 92	-
11	19 00	22 00	27 20	73 00	130 00	2 04	-	26 00			299 24	
12	19 81	18 99	55 35	64 13	77 50	2 38	-	24 00			262 16	
13	21 38	22 58	42 60	58 35	80 00	2 57	-	21 00			248 48	
14	24 51	20 88	89 95	25 00	38 15	2 95	-	12 75			214 19	
15	24 50	20 40	102 10	61 00	95 00	2 94	-	-			305 94	
16	20 14	18 94	84 70	44 75	99 50	2 43	-	3 50			273 96	
	129 34	123 79	401 90	326 23	520 15	15 31	-	87 25	-	-	1603 97	-
18	23 20	24 40	19 00	74 50	143 00	2 40					286 50	
19	21 41	16 31	50 65	13 50	98 50	6 39					233 76	
20	21 60	19 97	52 00	48 50	102 50	2 49					247 06	
21	18 81	22 79	21 65	64 63	122 75	2 26					252 89	
22	21 50	22 40	15 60	66 50	113 00	2 38					241 38	
23	11 38	15 38	17 80	52 75	90 25	1 37					188 93	
	117 90	121 25	176 70	320 38	670 00	17 49	-	-	-	-	1450 72	-
26	23 13	20 48	96 70	23 50	92 25	2 78					258 84	
27	20 88	24 98	100 80	30 50	73 75	2 54			51 00		304 45	
28	21 75	18 38	142 30	34 50	20 50	2 61		52 00	16 50		308 54	
29	23 25	21 10	86 70	48 00	22 00	2 79		64 00			267 84	
30	19 26	17 94	80 90	39 75	66 00	2 32		10 50			236 67	
31	108 27	102 88	507 40	176 25	274 50	13 04	-	126 50	67 50	-	1376 34	-
	614 74	585 49	1571 95	1517 61	2331 53	73 60	-	849 40	67 50	-	7660 04	21

SA 068368

①

OTAL	Titanium	ZEALEX	Alphasize
370 36	21 00		
297 24			
63 38			
265 49			
215 35			
43 27			
55 09	21 00	-	-
72 90			
244 96			20
338 42			2
309 26			
33 61			
174 77			
73 92	-	-	22
299 24			
262 16			
248 48			
214 19			
05 94			
273 96			
03 97	-	-	-
286 50			
233 76		27 00	
247 06			
252 89			
241 38			
188 93			
450 72	-	27 00	-
258 84			
304 45			
308 54			
267 84			
236 67			
376 34	-	-	-
[illegible]	21 00	27 00	[illegible]

SA 068369

DECEMBER 1978 — BLADE COATER CHEMICALS

DATE	LATEX 673-GAL	Defoamer D7-122	Silicone gal DC-111	KELGEM HV #	TS.PP #	CLAY GAL HT WET	GAL AMMONIA	UNITEX #	CAMEL WITE #	LATEX 6107 gal	PG 208 #
11-27 78	10 85	20	50	75	80	31 25	30	1 70			
28-29	17 36	32	80	120	128		68	2 72	100		
30					20	18 76	32		200		
12-1-4-5-6	36 89	68	170	255	273	119 48	132	1 70	150		600
7	10 85	20	50	75	80	31 25	30	1 70			
8	10 85	20	50	75	80	31 25	30	85			
11	11 98	24	56	120	96	34 46	36	34			
13	6 60	16	32	120	18 80	24					
14	5 79	12	28	60	49	17 20	18				
15	8 68	16	40	60	64	25 00	24				
18	10 85	20	50	75	80	31 25	30	1 70			
19-20	10 85	20	50	75		31 25	30	1 70			
21	8 68	16	40	60	64	25 00	24	1 36			
22	13 02	24	60	70	96	37 50	36	2 04			
26	10 85	20	50	75	80	31 25	30	1 70			
27	10 85	20	50	75	140	31 25	54	1 70			400
28					34				17 50		300
29		12	30	45	48	18 75	18	1 02			
	185 15 ✓	360 ✓	886 ✓	1455 ✓	3292 ✓	515 14 ✓	622 ✓	20 23 ✓	176 00 ✓	-	1300 ✓
	3 98		8.09			10	7.27				
	73690		71 68			515140	4522				
	113109										

T NCO 74-B

1

16

SH 065570

-208 #	PENCORE 74-B	STAYSIZE 112#	CLINSIZE 173-B#	NOPCOCIDE 120	NOPCOCIDE K gal	CALGON T#	GLYCER-INE	CELLO-SIZE	CELLO U# LOSE CPC 7L	SCRIP TEST 720 gal	IC 807	237 gal ATLAS
			900		5							
600					7							
400			3200							204	60	
300	1500				17		46	50				3
1300 ✓	1500 ✓	- ✓	4100 ✓	- ✓	29 ✓	- ✓	46 ✓	50 ✓	-	204 ✓	60 ✓	3 ✓
					10					227		8.36
					290					463		25

SH 068371

620 gal LATEX	722 gal LATEX	# D7122NS	# BORAX	LV # PROTEIN	SODIUM NITRATE	PREZ 707 gal	HT CLAY DRY
4.40	2.42	8	32	6.24	36.00	15	
8.60		32	80	12.00		28	
6.60	2.64	12	50	10.00	3.00	23	
	80						
1960	586	52	162	2824	3900	66	
4.33	3.98					10	
8487	2332					660	

JANUARY 1979 — MILL "C" CHEMICALS

DATE	GAL ALUM	3000# TANK CLAY	GAL x 9.2 SIZE	675B LBS CLINTON	GAL. WAX PARACOL	BAGS x 100 STAYZYME-T	112 LBS. STAYSIZE	LBS. TITANIUM	LBS. ANSILEX	KOCH- GAL DEFORMER	GAL CP-7	LI NALCO
1-1-78	6.00	180.00	20.70	-	-	106.00	-	45.00	22.50	15	.50	
2	5.00	330.00	20.70	-	-	112.00	-	56.50	26.50	15	1.00	
3	6.00	360.00	20.70	-	-	112.00	-	65.50	36.50	15	1.00	
4	8.00	330.00	20.70	-	-	112.00	-	45.00	36.00	15	.50	
5	5.50	360.00	20.70	-	-	98.00	-	45.00	38.00	15	1.50	
6	5.50	300.00	20.70	-	-	56.00	-	44.50	30.00	10	1.00	
7												
8	6.50	180.00	20.70	-	-	135.00	-	21.00	14.00	15	1.00	
9	7.00	90.00	20.70	-	-	42.00	-	42.00	19.00	15	1.50	
10	5.50	240.00	20.70	-	-	141.00	-	61.50	31.00	15	1.25	
11	7.00	300.00	20.70	-	-	98.00	-	46.50	21.00	15	1.25	
12	4.50	150.00	20.70	-	-	28.00	-	22.00	11.00	15	1.00	
13	5.50	150.00	20.70	-	-	-	-	15.00	7.50	15	1.00	
14												
15	8.50	330.00	-	-	-	143.00	-	46.50	24.00	15	1.00	
16	5.50	330.00	20.70	-	-	120.00	-	26.00	13.00	15	1.00	
17	7.00	270.00	20.70	-	-	80.00	-	32.00	15.00	15	1.50	
18	4.00	120.00	20.70	-	-	21.00	-	18.00	9.00	5	.25	
19	7.50	180.00	20.70	-	-	30.00	-	18.00	11.00	15	.75	
20	3.50	120.00	20.70	-	-	20.00	-	17.00	8.50	10	.50	
21												
22	8.00	420.00	20.70	-	-	197.00	-	[illegible].00	12.35	15	.50	
23	3.00	360.00	20.70	-	-	84.00	-	46.00	23.00	15	1.00	
24	5.50	270.00	20.70	-	-	56.00	-	32.25	20.00	15	1.00	
25	5.50	210.00	20.70	-	-	28.00	-	15.00	9.50	10	1.00	
26	6.50	270.00	-	-	-	56.00	-	69.50	34.00	15	1.50	
27	7.00	180.00	20.70	-	-	28.00	-	77.50	38.75	15	.50	
28												
	143.50	6030.00	455.40	—	—	1903.00	—	928.25	501.00	335	23.00	
						✓				x.09 8	8.12	

SA 068373

GAL. P-7	LBS NALCO-680	LBS. PARAMEL	TANK ALUM-ON-MACH.	GAL. CLAY-TANK	LBS. ZEOLEX	753 CLINSIZE	BAGS SODIUM NITRATE
50	162	23000	2	1500	-	-	-
100	152	8480	2	3800	-	-	-
100	148	-	2	4200	-	-	-
50	144	-	3	33.00	-	-	-
150	160	-	2	2500	-	-	-
100	128	-	2	3900	-	-	-
100	144	16500	83	2000	-	-	-
150	160	34780	3	900	-	-	-
125	136	-	1	3300	-	-	-
125	140	-	4	3000	-	-	-
100	140	31140	2	1500	-	-	-
100	106	25680	2	1500	-	-	-
100	136	-	3	3700	-	-	-
100	156	-	2	3700	-	-	-
150	170	11600	3	3000	-	-	-
25	64	7000	-	1300	-	-	-
75	172	30600	2	1300	-	-	-
50	148	25260	2	1450	-	-	-
50	162	-	3	4650	-	-	-
100	162	-	1	3600	-	-	-
100	152	20000	2	3000	-	-	-
100	140	31480	2	2200	-	-	-
150	136	10500	2	2500	-	-	-
50	106	-	3	2300	-	-	-
2300	3424	276020	—	—			
		8					
x 8.42		22,082					

SA 068374

JANUARY 1979 x 120

MILL "D" CHEMICALS

DATE	120 x tank SIZE GAL	C-7 GAL	LBS J 100# BAGS	100# BAGS CLINCO 55	50# BAGS TITANIUM	71-M NALCO GAL	CLAY COUNTER	SODIUM ALUMINATE	B-64 GLUE
1-1 78	480	2	-	12800	11500	30	-	-	-
2	360	3	-	8000	10000	50	-	-	-
3	720	1	-	9600	10800	127	-	-	-
4	480	2	-	14400	12500	1	-	-	-
5	360	2	-	14400	10000	12	-	-	-
6	300	2	-	10500	5250	-	15	1	-
7									
8	480	2	-	22400	6250	73	5	1	-
9	360	2	-	9600	8100	27	6	1	-
10	360	2	-	11200	6600	18	5	1	-
11	240	2	-	9600	6500	6	7	1	-
12									
13									
14									
15	480	2	-	16000	15600	10	7	1	-
16	360	2	-	11200	8250	60	4	-	-
17	360	1	-	11200	5750	1	5	1	-
18	360	2	-	11200	13300	12	4	1	-
19	360	2	-	10300	12100	12	3	-	-
20	1440	1	-	3200	8000	-	-	-	-
21	360	2	-	17600	12000	1	-	-	-
22									
23	360	2	-	9600	11000	36	-	2	-
24	240	1	-	8000	10000	1	-	-	-
25	360	1	-	9600	9500	15	-	-	-
26	360	2	-	14400	10000	12	-	-	-
27	360	1	-	4800	10600	6	5	1	-
28									
	9540	39	-	249600	213600	510	66	11	

SA 068375

JANUARY 1979

MILL "E" CHEMICALS

DATE	SOY FLOUR	H.T CLAY	CASEIN	H.T CLAY TANK	CAMIL WITE	CAUSTIC SODA	LATEX DOW636 TK.	LATEX DOW636 DRUM	TSPP	ULTRAMARINE BLUE	PAREZ RESIN	RED BxP
1-2-4	-	-	2420	575.00	286	-	1140.00	-	154	-	-	-
5-6	-	-	1540	350.00	182	-	840.00	-	180	-	-	-
8-10	-	-	2530	575.00	299	-	1380.00	-	161	-	-	-
11-13	-	-	2420	550.00	286	100	1320.00	-	184	-	-	-
15-16	-	-	1540	350.00	182	100	840.00	-	98	-	-	-
17-18+19	-	-	2090	475.00	247	100	1140.00	-	210	-	-	-
22-23+24	-	-	2420	600.00	286	-	1440.00	-	154	-	-	-
25+26	-	-	1815	450.00	208	-	1330.00	-	137	-	-	-
	—	—	16775	3925.00	1976	300	9430.00	-	1278			
			✓	✓	✓	✓	✓ 487		✓			
							45264					

~~6770.70~~ 6403.41
- 545.00
5858.41

SA 068376

PAREZ RESIN	RED BxP	GAL AMMONIA	Sodium Nitrate SALT	BORAX	GAL NOPCO #178	# FORMALY-DEHYDE	# PRO COTE PROTEIN	LATEX IDN 620 DRUM	STANLEY STACOTE 130	DYLEX LATEX	SORNION LATEX
-	-	4 62	15 00	3 30	67	5 50	66 00	-	-	-	4 00
-	-	2 94	7 00	2 10	47	3 50	42 00	-	-	-	
-	-	4 83	115 00	3 55	68	5 75	69 00	-	-	-	-
-	-	4 62	70 00	3 30	67	5 25	66 00	-	-	-	
-	-	2 94	-	3 10	60	3 50	42 00	-	-	-	
-	-	3 99	130 00	2 85	62	4 75	57 00	-	-	-	-
-	-	4 62	110 00	3 30	67	5 50	66 00	-	-	-	-
-	-	3 36	35 00	2 40	46	4 00	48 00	-	-	-	-
		31 92	545 00	23 90	4 84	37 75	456 00				24 00
		1 27			7 73						4 88
		232 06			37 41						11 52

SA 068377

Mach. 5&6 -
Mill C
JANUARY 1979

-2

PULP USED IN HYDROPULPER

DATE	DRYDEN SEMI BL. (481)	NAMOLA (462)	MARATHON (487)	SUPERIOR (507)	PR. GEORGE (467)	Celgar (477)	CRESTBROOK (520)	BRUNSWICK (489)	WEST-VACO	KAMLOOPS (481)	TOTAL (#of bales)
1-1 79	-	-	328	-	-	-	-	-	-	-	436
1-2	-	126	90	102	-	-	-	-	-	-	330
1-3	-	147	36	120	-	-	-	-	-	-	303
4	-	-	610	18	-	102	-	-	-	-	730
5	-	-	242	-	-	114	-	-	-	-	356
6	-	97	37	-	-	24	-	-	-	-	200
	-	(1709040) 370	(654091) 1343	(121680) 240	-	(114480) 240	-	-	-	-	2355
8	60	9	182	-	-	-	-	-	-	-	296
9	-	18	149	-	-	-	-	-	-	-	390
10	-	175	42	-	-	-	-	-	-	-	322
11	-	-	205	-	-	-	-	-	-	-	940
12	-	-	182	-	-	-	-	-	-	-	308
13	(28860) 60	(93324) 202	(447553) 159	-	-	-	-	-	-	-	288
			919	-	-	-	-	-	-	-	2544
15	-	-	228	-	-	-	-	-	-	-	358
16	-	-	244	-	-	-	-	-	-	-	370
17	-	-	72	-	-	155	-	-	-	-	400
18	-	-	-	-	-	55	-	-	-	-	163
19	-	-	180	-	-	50	-	-	-	-	374
20	-	-	(369633) 35	-	-	(258534) 282	-	-	-	-	317
	-	-	759	-	-	542	-	-	-	-	1982
22	210	-	-	-	-	181	-	-	-	-	391
23	159	47	-	-	-	26	-	-	-	-	232
24	34	52	-	-	-	154	-	-	-	-	240
25	44	32	-	-	4	-	-	-	-	-	236
26	-	56	-	-	10	-	-	-	-	-	156
27	(215007) 447	(101640) 220	-	-	(6538) 14	(86099) 361	-	-	-	-	99
											1354
	(243867) 507	(365904) 792	(1471227) 3021	(121680) 240	(6538) 14	(545211) 1143	-	-	-	-	8235
	✓	✓	✓	✓	✓	✓	✓	✓			3845658

SA 068378

[redacted]

# of Dates	397 DRYDEN & B	587 Gd PRAIRIE	397 EDDY	560 Buckeye	518 Alphanum	515 Domtar	Allied SW
TOTAL							
436	-	108	-	-	-	-	-
330	-	12	-	-	-	-	-
303	-	-	-	-	-	-	-
730	-	-	-	-	-	-	-
356	-	-	-	-	-	-	-
300	-	-	42	-	-	-	-
2355	-	(70440) 120	(16674) 42	-	-		
296	-	-	36	9	-	-	-
390	-	-	223	-	-	-	-
322	-	-	105	-	-	-	-
940	-	-	235	-	-	-	-
308	-	-	126	-	-	-	-
288	-	-	105	-	24	-	-
2544	-	-	(52800) 1330	(5040) 9	(12432) 24		
358	-	-	112	-	18	-	-
370	-	-	126	-	-	-	-
400	-	54	119	-	-	-	-
163	-	108	-	-	-	-	-
374	-	144	-	-	-	-	-
317	-	-	-	-	-	-	-
1982	-	(179622) 306	(141729) 357	-	(9324) 18		
391	-	-	-	-	-	-	-
232	-	-	-	-	-	-	-
240	-	-	-	-	-	-	-
236	-	-	156	-	-	-	-
156	-	-	90	-	-	-	-
99	-	-	32	-	28	6	-
1354	-	-	(110366) 278	-	(14504) 28	(3090) 6	-
8235	-	(250062) 426	(196779) 2007	(5040) 9	(36260) 70	(3090) 6	-
3845658	✓	✗	✗	✗	✗	✗	

7559716

SA 068379

Mach 7, 8 + 9
MILL D

JANUARY 1979 Pulp Used In Hydropulper

DATE	SUPERIOR 507	KAMLOOPS 481	SIMPSON 397	NAHOELA 462	MARATHON 487	CRESTBROOK 520	Gd PRAIRIE 587	ALLIED SW 500	WEST VACO 327	PRINCE GEORGE 467	TOTAL	ALLIE HW 49
1-1 79	-	-	-	282	-	-	-	-	-	-	396	-
1-2	-	-	-	162	-	50	-	-	-	-	378	-
1-3	-	-	-	-	-	318	-	48	-	-	366	-
4	-	-	-	-	-	-	-	240	-	-	348	-
5	48	-	-	156	-	-	-	-	-	-	336	-
6	132	-	-	24	-	-	-	-	-	-	306	-
	(191200) 180	-	-	(288288) 624	-	(191360) 368	-	(144000) 288	-	-	2130	-
8	84	-	-	-	-	-	-	-	-	-	300	-
9	120	-	-	-	-	-	-	134	-	-	348	-
10	84	-	-	-	-	-	-	124	-	-	324	-
11	106	-	-	-	-	-	-	192	-	-	324	-
12	84	-	-	-	-	126	-	90	-	-	300	-
13		-	-	-	-	204	-	8	-	-	212	-
	(2123416) 478	-	-	-	-	(171600) 330	-	(274000) 548	-	-	1808	-
15	44	162	-	-	-	72	-	-	-	-	314	
16	300	-	-	-	-	-	-	-	-	-	312	
17	180	-	-	48	-	-	-	-	-	-	284	
18	48	-	-	96	-	-	-	-	-	-	340	
19	24	-	-	32	-	-	-	-	-	-	312	
20	56	-	-	-	-	-	-	-	-	-	228	
	(330564) 652	(77922) 162	-	(81312) 176	-	(37448) 72	-	-	-	-	1790	(85484)
22	104	-	-	-	-	-	-	-	-	-	372	-
23	20	-	-	-	-	-	-	-	-	-	396	
24	-	-	-	210	-	-	84	-	-	-	360	
25	-	-	-	212	-	-	84	-	-	-	336	
26	48	-	-	90	-	-	24	64	-	-	304	
27	108	-	-	-	-	-	-	-	-	-	252	
	(141960) 280	-	-	(236544) 512	-	-	(412704) 192	(32000) 64	-	-	2020	(53696)
	(806130) 1590	(77922) 162	-	(606144) 1312	-	(400400) 770	(112704) 192	(450000) 900	-	-	7748	(114130)
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3714058	

5A 068380

Simpson - Eddy

TOTAL	497 ALLIED HW	477 Celgar	397 DRYDEN F.B	489 BRUNSWICK	397 EDDY	481 DRYDEN SEMI BL.	475 PORT HUDSON	434 FORT FRANCES	512 Nicar	462 MISSOULA	498 PRINCE ALBERT	491 St. Croix
396	-	114	-	-	-	-	-	-	-	-	-	-
378	-	106	-	-	-	-	-	-	60	-	-	-
366	-	-	-	-	-	-	-	-	-	-	-	
348	-	-	-	-	108	-	-	-	-	-	-	-
336	-	-	-	-	132	-	-	-	-	-	-	-
306	-	-	-	-	150	-	-	-	-	-	-	-
2130	-	(104940) 220	-	-	(154830) 390	-	-	-	(36720) 60	-	-	-
300	-	-	-	-	216	-	-	-	-	-	-	-
348	-	-	-	-	94	-	-	-	-	-	-	-
324	-	-	-	-	116	-	-	-	-	-	-	-
324	-	-	-	-	26	-	-	-	-	-	-	-
300	-	-	-	-	-	-	-	-	-	-	-	-
212	-	-	-	-	-	-	-	-	-	-	-	-
1808	-	-	-	-	(177444) 452	-	-	-	-	-	-	-
314	36	-	-	-	-	-	-	-	-	-	-	-
312	12	-	-	-	-	-	-	-	-	-	-	-
284	20	-	36	-	-	-	-	-	-	-	-	-
340	48	2	136	-	-	-	-	-	-	-	10	-
312	28	40	132	-	-	-	-	-	-	-	56	-
228	28	10	-	-	-	-	-	-	-	-	134	-
1790	(85484) 172	(24804) 52	(120688) 304	-	-	-	-	-	-	-	(77600) 200	-
372	-	28	-	-	-	-	-	-	-	-	240	-
396	42	64	52	-	114	-	-	-	-	-	104	-
360	10	6	-	-	12	-	-	-	-	-	-	3
336	-	-	-	-	-	-	-	-	-	-	-	4
304	16	50	-	-	-	-	-	-	-	-	-	1
252	50	94	-	-	-	-	-	-	-	-	-	
2020	(68646) 118	(115434) 242	(20644) 52	-	(50022) 126	-	-	-	-	-	(171312) 344	(44170) 9
7748	(144130) 290	(245178) 514	(141332) 356	-	(384296) 968	-	-	-	(30720) 60	-	(270912) 544	(44170) 9
714058	✓	✓	✓		✓				✓		✓	✓

Mach. 5+6
Mill C
JANUARY 1979

Chemicals Used In Beater

DATE	ALUM lbs	SIZE lbs	CLAY 1.5 gal	ANSILEX	SCM	NALCO 680	TITANIUM	ZEALEX	TI PURE	TOTAL
1-1 79	1435	1025	1500	2250	4500	164	-	-	-	10874
1-2	1330	715	6800	2650	5550	152	-	-	-	17197
1-3	1295	505	10200	3650	6550	148	-	-	-	22348
4	1260	495	9900	3600	1500	144	-	-	-	7899
5	1400	535	12500	3800	4700	160	-	-	-	23095
6	1120	425	12250	3000	950	128	3500	-	-	23373
	7840	3700	53150	18950	26750	896	3500	-	-	114786
8	1365	825	3600	1400	2100	144	-	-	-	9434
9	1400	1080		1750	3850	160	-	-	-	8240
10	1190	736	6700	2100	6150	136	-	-	-	17012
11	1225	686	7650	2100	100	140	4550	-	-	14451
12	1225	938	1500	1600	-	140	2000	-	-	7403
13	928	738	1500	750	1500	106	-	-	-	5522
	7333	5003	20950	9700	13700	826	6550	-	-	64062
15	1190	622	5800	2400	-	136	7700	-	3250	21098
16	1365	795	7000	1300	-	156	2600	-	-	13216
17	1453	1064	6100	1500	800	166	2400	-	-	13483
18	560	490	1800	900	-	64	1800	-	-	5614
19	1505	1185	2200	1100	-	172	1800	-	-	7962
20	1296	1011	1700	850	-	148	1700	-	-	6705
	7369	5167	24600	8050	800	842	18000	-	3250	68078
22	1436	911	9220	1225	250	164	2850	-	-	15056
23	1383	837	8725	2300	-	166	4550	-	-	17761
24	1325	849	3966	1950	-	151	3200	-	-	11441
25	1225	800	2500	750	-	140	1500	-	-	7165
26	1190	760	5100	3400	-	136	4950	-	-	15536
27	928	591	4750	3825	-	106	7750	-	-	18000
	7487	4748	34261	13700	250	863	24800	-	-	86109
	30029	18618	132961	50400	41500	3427	52850	-	3250	333035
	✓	✓	✓	✓	✓	✓	✓		✓	

SH 068382

Mach. 7,8 + 9
Mill D

JANUARY 1979

Chemicals Used In Beater

DATE	ALUM	SIZE	CLAY	AUSILEX	(TITANIUM) SCM	NALCO 680	AX	(TITANIUM) TIPRE	CAMEL WITE	CALICUM CARBONATE	TOTAL	Titani
1-1 79	27.05	23.12	78.50	16.50	80.50	2.85	-	-	-	-	328.52	-
1-2	22.95	21.88	76.00	13.50	97.20	2.61	-	-	-	-	234.14	-
1-3	25.00	31.30	57.00	42.00	145.00	2.82	-	-	-	-	303.12	-
4	21.55	36.90	60.50	74.50	127.50	2.64	-	42.00	-	-	365.59	-
5	21.05	30.55	101.00	45.50	30.50	2.67	-	47.00	-	-	275.02	6
6	14.93	14.08	80.13	27.00	45.50	1.91	-	7.00	-	-	190.55	
	132.53	147.83	453.13	219.00	526.20	15.50	-	96.00	-	-	1596.94	6
8	26.55	27.88	17.20	34.50	.50	2.64	-	57.50	-	-	166.77	-
9	22.50	28.71	76.75	33.00	.50	2.69	-	78.50	-	-	242.65	-
10	21.13	19.16	74.75	30.00	-	2.54	-	85.00	-	-	232.58	-
11	21.65	15.23	80.50	38.50	66.00	2.55	-	-	-	-	224.43	-
12	24.43	18.68	82.25	48.50	-	2.81	-	97.00	-	-	273.67	-
13	19.10	13.75	73.75	19.50	-	2.22	-	34.00	-	-	162.32	-
	135.36	123.41	405.20	204.00	67.00	15.45	-	352.00	-	-	1302.42	-
15	20.21	20.48	40.20	90.25	-	2.56	-	153.25	-	-	326.95	-
16	20.05	19.10	32.00	73.00	1.50	2.58	-	85.00	-	-	233.23	-
17	20.35	20.75	45.00	44.00	57.50	2.52	-	-	-	-	190.12	-
18	23.25	23.40	46.90	67.00	130.00	2.79	-	-	-	-	293.34	-
19	23.25	22.60	38.20	60.50	121.00	2.79	-	-	-	-	268.34	-
20	17.75	17.60	29.40	36.00	68.50	2.13	-	-	-	-	171.38	-
	124.86	123.93	231.70	370.75	378.50	15.37	-	238.25	-	-	1483.36	-
22	27.80	24.80	35.70	76.50	138.50	2.82	-	-	-	-	316.12	-
23	25.33	21.00	46.20	61.35	120.50	3.08	-	-	-	-	277.36	-
24	23.13	16.88	55.75	34.00	82.00	2.87	-	-	-	-	214.63	-
25	21.60	15.75	81.50	32.00	75.25	2.67	-	-	-	-	228.77	-
26	22.45	21.35	69.50	72.75	144.50	2.79	-	16.25	-	-	349.59	-
27	14.95	14.55	44.90	54.50	106.00	1.95	-	4.50	-	-	241.35	-
	135.26	124.33	333.55	331.00	666.75	16.18	-	20.75			1627.82	-
	528.01	519.50	1423.58	1124.75	1638.45	62.50	-	707.00			6010.54	6
	✓	✓	✗ 10	✓	✓	✓		✓				✓

5A 868383

TOTAL	Titanium	Zealex	Alpha-Size
28852	-	-	-
23414	-	-	-
30312	-	-	-
96559	-	-	-
27502	675	-	-
19055		-	-
59694	675	-	-
16677	-	-	-
24265	-	-	-
23258	-	-	-
32443	-	-	-
27367	-	-	-
16232	-	-	-
30242	-	-	-
32695	-	-	-
33323	-	-	-
19012	-	-	-
29334	-	-	-
36834	-	-	-
17138	-	-	-
48336	-	-	-
31612	-	-	-
27736	-	-	-
21463	-	-	-
32877	-	-	-
34959	-	-	-
24135	-	-	-
16282	-	-	-
2010 54	675	-	-

1373989

Trial 23+24

JANUARY 1979 — BLADE COATER Chemicals

DATE	LATEX 673-GAL.	Defoamer D7-122 (16 ✓)	Stearate DC-111 gal.	KELGEM HV#	T.S.P.P #	CLAY GAL. HT WET	GAL. Ammonia	UVITEX #	CAMEL WITE #	LATEX 6107 gal.	PG-208 #	PENCO 74-E
1-2 79	13 42	80	84	90	96	44 03	61	204	25 00	6 55	11 50	-
3	2 17	24	35	22	16	18 35	31	34	27 50	7 00	10 00	-
4	10 85	20	50	75	80	31 25	30	1 70	-	-	-	-
5	8 68	16	40	60	64	25 00	24	1 36	-	-	-	-
8	8 68	16	40	60	64	25 00	24	36	-	-	-	-
9-10+11	5 42	10	25	38	40	42 08	75	85	15 00	-	-	-
12	15 19	28	70	1 05	1 12	43 75	42	2 38	-	-	-	-
15	10 85	20	50	75	80	31 25	30	1 36	-	-	-	-
16	11 22	24	60	90	96	37 50	36	-	-	-	-	-
17	8 48	16	40	60	64	26 20	24	-	-	-	-	-
18	8 68	16	40	60	64	25 00	24	-	-	-	-	-
19+20	10 85	20	50	85	80	31 25	30	-	-	-	-	-
22		8	20	30	32	12 50	1 58					
23+24						26 46	60		15 00			
25	10 85	20	50	75	80	30 25	30	1 70				
26	8 68	16	40	60	64	25 00	24	1 68				
1-1		36	45			12 78	45		49 50	12 60	13 50	
	134 02	370#	~~6 69~~	~~9 78~~	10 32#	~~456 24~~	~~6 53~~	12 77#	~~55 00~~	-	-	-
	3 98		7 39	9 85#		487 65	7 48		132 00#	26 15	35 00#	
	53,340#		8.09			12 0	7.27			4.37		
			5,979#			487,650#	5,438#			11428#		

607887

SA 068385

# G-208	PENCORE 74-B	STAYSIZE 112 #	CLINSIZE 173.8 #	NOPCOCIDE 120	NOPCOCIDE K gal	CALGON T #	GLYCERINE	CELLOSIZE	CELLO # LOSE CMC 7L	SCRIP TEST 720 gal	7C-807	239 pd ATLAS
11 50	-	-	-	10	5	19	-	60	-	-	-	-
10 00	-	-	-	10	5	20	-	-	60	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	14	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	21 00	-	-	-	-	-	-	-	-	-
					12							
13 50				18	9	36			1 35			
-	-	-	21 00#		~~35~~	-	-	-	-	-	-	-
35 00#			✓	38	45	75#		60#	195#			
					1 00							
✓					450#			✓				
				✓								
					✓				✓			
						✓						

SA 868386

620 gal LATEX	722 gal LATEX	DZ-122NS #	# BORAX	LV # PROTEIN	SODIUM NITRATE	PREZ 707 gal.	H.T. CLAY DRY
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1100	528	-	90	1872	-	38	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
180	-	-	-	-	-	-	-
60	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
1340	528	6	93	1872		45	200
2680	1056	6*	183*	3744*	-	83	200*
4.33	3.98					10.00	
11604*	4203*		✓	✓		830*	✓
✓	✓	✓				✓	

SA 068387

FEBRUARY 1979 Mill "C" Chemicals

DATE	ALUM. GAL.	CLAY 3000# TANK	SIZE GAL. x 9.2	CLINTON 675B LBS.	PARACOL GAL.	STAZYME-J WAX BAGS x 100	STAYSIZE 112	TITANIUM LBS.	ANSILEX LBS.	DEFOAMER KOCH GAL.	CP-7 GAL.	NALCO LB:

New Book

SA 868388

FEBRUARY 1979 Mill "D" Chemicals

DATE	120 x TANK SIZE GAL	C-7 GAL	LBS. J 100# BAGS	100# BAGS CLINCO 55	50# BAGS TITANIUM	71-M GAL NALCO	CLAY COUNTER	SODIUM ALUMINATE	B-64 GLUE

New Book

[redacted]

FEBRUARY 1979 Mill "E" Chemicals

DATE	SOY FLOUR	H.T. CLAY	CASEIN	H.T. CLAY	TANK CAMIL WITE	CAUSTIC SODA	LATEX DOW 636 TK.	LATEX DOW 636 DRUM	T.S.P.P.	ULTRAMARINE BLUE	PAREZ RESIN	RED BxP

New Book

[redacted]

SA 068390

Mach. 5+6
Mill C
FEBRUARY 1979

Pulp Used In Hydropulper

DATE	DRYDEN SEMI BL	NAHOLA	MARATHON	SUPERIOR	PA	GEORGE	CELGAR	CRESTBROOK	BRUNSWICK	WESTVACO	Kamloops	TOTAL	DRYDE 7B

New Book

SA 068391

Total	Dryden 7B	Gd. Prairie	Eddy	Buckeye	Alphanier

5A 068392

Mach. 7, 8 + 9
Mill D

FEBRUARY 1979

Pulp Used In Hydropulper

DATE	Superior	Kamloops	Simpson	Nahocla	Marathon	Crestbrook	Ed. Prairie	Allied SW	Westvaco	Prince George	Total	Illie Hu

New Book

SA 066393

Singapore - Eddy

TOTAL	Allied HW	Celgar	DRYDEN F.B.	BRUNSWICK	EDDY	DRYDEN SEMI BL.	Port Hudson	FORT FRANCES	NORAL	Missoula	PRINCE ALBERT

SA 068394

Mach. 5+6
Mill C
FEBRUARY 1979

Chemicals Used In Beater

DATE	ALUM.	SIZE	CLAY	ANSILEX	SCM	MALCO 680	TITANIUM	ZEALEX	TI PURE	TOTAL

New Book

#10 St[illegible] [illegible] 3[illegible]00 6[illegible] #[illegible]

[illegible] 2700

7[illegible] 500

6[illegible] 7[illegible] 7[illegible]

#10 2700 Apping Capac[illegible]

#11 2300

SA 068397

Trials June 1911 #10

Date										
5	30									
	31									
6	1									
	2 3									
	6									
	7									
	8 9									
	10									
	11									
	13									
	14									
	15									
	16									
	17									
	18									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27									
	28									
	29									
	30									

SA 068398

Trials June 1977 #11

Date	Prince Albert	Soakeye 91	Dryden H.B	Dixie Gloss
5 30				
31				
6 1				
2				
3				
[illegible]				
[illegible]				
8				
7				
10				
	11-083			
13	2024	11760		2000
14				
15				
16				
17				
18				
	2024	11760		2000
20				
21				
22			11-0[illegible]32	
23			9500	[illegible]
24				
25				
26				
			9500	6200
27				
28				
29				
30				
	2024	1176[illegible]	9500	8[illegible]

SA 068399

Bleached Pulps #10 June 1977

Date	Bl a H W	Bl a S W	481 Calgar	506 Prince Albert	470 Sockeye 91
5 30					
31			5772	9 08	
6 1			14430	22770	
2			12506	19734	
3			12506	19734	
			45214	71346	
6			15[illegible]	[illegible]	
7			14[illegible]	[illegible]	
8			13[illegible]	[illegible]	
9			14[illegible]	22770	
10			11544	15216	
11					
			69264	109296	
13			15272	24288	
14			14430	22770	
15			15272	24288	
16			153[illegible]	[illegible]	
17			13[illegible]	[illegible]	
18					
			74074	116886	
20			15[illegible]	[illegible]	
21			14[illegible]	[illegible]770	
22			14[illegible]	22770	
23			13468	[illegible]	
24			13[illegible]	[illegible]	
25			14430	[illegible]770	
26			14[illegible]	[illegible]	
			76200	151800	
[illegible]			[illegible]	[illegible]	
2			[illegible]	[illegible]	
[illegible]			[illegible]	[illegible]	
3			[illegible]	[illegible]	
			53872	85008	

[illegible]

Nev
8.7#
Nev

SA 068400

Naughton
Slop
8.7# per gal
Naughton

Mexico Yellow	Calc Carb	Sodium Bicarb	Zorbed	Jita	Amolite	Sizz	Clay		Scrytal	Retain	Liquipal	alum
				[illegible]	[illegible]	[illegible]	[illegible]					
				5700	1900	362	1000					[illegible]
				5750	1950	[illegible]						[illegible]
				4550	1750	[illegible]						[illegible]
				16350	6000	53[illegible]	350					[illegible]
				[illegible]	[illegible]	[illegible]						[illegible]
				[illegible]	[illegible]	[illegible]						[illegible]
				[illegible]	[illegible]	[illegible]						[illegible]
				[illegible]	[illegible]	[illegible]						[illegible]
				[illegible]	[illegible]	210						507
				[illegible]	[illegible]	[illegible]						[illegible]
				16550	10800	1261						3535
				6300	[illegible]	280						[illegible]
				5700	[illegible]	362						[illegible]
				[illegible]	[illegible]	351						[illegible]
				[illegible]	[illegible]	270						[illegible]
				[illegible]	[illegible]	[illegible]						[illegible]
				23500	11550	1347						5107
				4600	1800	211						[illegible]
				5500	[illegible]	243						[illegible]
				[illegible]	2250	243						[illegible]
				5[illegible]	[illegible]	245						[illegible]
				[illegible]	[illegible]	[illegible]						[illegible]
				2250	2250	263						[illegible]
				2250	2250	263						[illegible]
				28950	15000	1753						7086
				1800	[illegible]	211	1200					[illegible]
				[illegible]	[illegible]	[illegible]	1200					[illegible]
				2400	1100	253	1400					[illegible]
				2450	2250	375	1500					[illegible]
				8900	8400	1122	5600					3968
				10125	5175	6297	7100					[illegible]

1c
Sta [illegible]

5A

168891

Date	Bl a H W	501 Bl a S W				475 Dryden F.B	481 Calgar	490 Sockeye 91	469 Prince George
5 30									
31		11523					1.063	[illegible]	
6 1		11022					10582	21560	
2		2004					1924	3920	
3									
		24549					23569	48020	
6									
7									
8									
9									
10									
11									
13								19600	
14								5880	
15									
16									
17									
18									
								25480	
20									
21									
22						9500		[illegible]	
23								19600	
24								[illegible]	
25		11523						[illegible]	
26		[illegible]						[illegible]	
		21042				9500		[illegible]	
27		[illegible]						[illegible]	
28		[illegible]						[illegible]	
29		1022						[illegible]	
30		[illegible]						[illegible]	
		40581						119070	
		[illegible]				[illegible]	[illegible]	[illegible]	

SA 068402

Bleached Pulps #11 June 1977

CC M60	Dex Gloss	Mississippi Chalk	Mapico Yellow	Size	Clay	Alum
			7000	460		[illegible]
			4400	440		117[illegible]
			800	80		215
			9800	980		2671
		13[illegible]00				
		4200				
		17400				
11200	7000					
	12000					
	13200					
			4750	460		1515
			3800	380		1316
11200	32200		8550	840		2861
			[illegible]	[illegible]		1557
			[illegible]	320		1134
			4400	440		1559
			4200	420		1488
			16200	1620		5740
11200	32200	17400	34550	3440		11672

SA 068403

Unbleached Pulps June 1977

Date	481 Dryden Nu Dry	444 Miramichi	426 Bathurst	136 A&W	Nakeola	Westvaco	alum
53							
51							
61							
2	7215	[illegible]	7668				[illegible]
3	8658	[illegible]	[illegible]				
	15873	[illegible]	[illegible]				[illegible]
[illegible]	544	[illegible]	[illegible]				[illegible]
	[illegible]	[illegible]	[illegible]				
	5582	[illegible]					
	1063	[illegible]	[illegible]				
10	10582	14430	10011			[illegible]	[illegible]
	53872	54390	77745	3012	[illegible]	[illegible]	6105
13							
14	[illegible]	[illegible]	[illegible]				[illegible]
15	11063	12876	9798			6115	1254
16	11063	[illegible]	[illegible]			[illegible]	1254
17	10191	[illegible]	[illegible]			[illegible]	[illegible]
18							
	39442	45732	34932			20286	4552
20	11544	10656	10224			7725	1308
21	11544	11544	[illegible]	[illegible]		1288	[illegible]
22	1443		[illegible]				[illegible]
23							
24							
25							
26							
	24531	24864	21726	9018		9016	3042
27							
28							
29							
30							
	133718	144966	157407	[illegible]	[illegible]	[illegible]	15498

SA 068404

June 1977
#10

Date	A Brake Used	B Pulps	6400 Storage Tank Ins	C Slab Waste	D Stub Coils	E Rej Prod	F Good Prod	G Storage Tank adj	A+B+G Total Raw Mat	down + up − C+D+E+F Gross Prod	% Rat
5 30	[illegible]	[illegible]									
31	1800	[illegible]	6400	1150	[illegible]	1000	20770	+	21893	25000	[illegible]
6 1	4500	46213	8000	1700	+	1000	39370	−(1600)	49113	42070	[illegible]
2	3900	41168	8000	5500	+	+	43340	+	45068	48840	[illegible]
3	3600	38965	6400	[illegible]	+	4720	38940	+1600	44168	46510	
	13200	146442		11200	2080	6720	142420	+	160242	162420	[illegible]
6	5100	48760	6400	5150	−	−	38600	+	53860	43750	[illegible]
7	4500	[illegible]	6400	[illegible]	[illegible]	[illegible]	47640	−	49013	[illegible]	[illegible]
8	[illegible]	42065	8000	[illegible]	[illegible]	+	41640	−(1600)	44665	[illegible]	[illegible]
9	4500	[illegible]	8000	3550	6850	1200	35480	+	50163	47400	[illegible]
10	3150	35770	8000	3450	6450	1200	32160	−	39120	43260	
11		[illegible]									
	21450	216971		15050	20350	3510	195520	−(1600)	236821	234430	[illegible]
13	5100	49260	6400	450	7350	3600	33800	+1600	55960	[illegible]	[illegible]
14	4500	45613	6400	850	8000	1700	39020	+	50113	49570	[illegible]
15	4800	46961	6400	1700	3600	1250	43230	+	51761	49780	[illegible]
16	4800	48760	6400	1800	−	1310	43340	+	53560	[illegible]	[illegible]
17	[illegible]	[illegible]	6400	4685	−	5170	33530	+	43765	[illegible]	
18	[illegible]										
	23100	[illegible]		9485	18950	13030	192920	+1600	255159	234385	[illegible]
20	3900	46171	6400	2050	−	1420	28730	−	46071	[illegible]	[illegible]
21	4500	[illegible]	8000	2850	−	4100	44110	−(1600	48113	[illegible]	[illegible]
22	4500	45713	[illegible]	[illegible]	−	−	[illegible]	+1600	51813	[illegible]	[illegible]
23	[illegible]	[illegible]	[illegible]	[illegible]	−	−	[illegible]	−	47965	[illegible]	[illegible]
24	[illegible]	[illegible]	6400	[illegible]	[illegible]	−	[illegible]	−	[illegible]	[illegible]	
25	[illegible]	[illegible]	6400	[illegible]	[illegible]	−	43570	−	47963	47170	[illegible]
26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	−	[illegible]	−(1600)	46363	[illegible]	[illegible]
	34800	[illegible]		13980	6230	5520	291840	−(1600)	335603	[illegible]	[illegible]
27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4000	[illegible]	[illegible]	53463	[illegible]	
29	[illegible]	[illegible]	6400	[illegible]	[illegible]	[illegible]	[illegible]	−(1600)	44873	[illegible]	
30	[illegible]	[illegible]	8000	1700	2420	−	[illegible]	−(1600)	49175	[illegible]	
	22400	167683		6500	8360	9090	164012	−	190082	187960	[illegible]
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	986760	−(1600)	1177907	11374[illegible]	

SA 068405

June 1977
#11

	Date	Broke Used	Prepared	Storage Tank No.	Stus Waste	Stus Rock	Ag Prod	Good Prod	Storage Tankbody	Total Cu Mtl		
	30	[illegible]										
	31	[illegible]	50186	4950	[illegible]	—	—	[illegible]	+ [illegible]	[illegible]		
57	1	5500	48004	7450	[illegible]	—	—	40[illegible]	[illegible]	[illegible]		
[illegible]	2	7500	35599	7450	[illegible]	—	—	[illegible]		[illegible]		
[illegible]	3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—		+ 1350	[illegible]		
14		31700	165775		[illegible]	47[illegible]	—	[illegible]	—			
[illegible]		[illegible]	[illegible]	[illegible]		—	[illegible]		—			
[illegible]	7	[illegible]	[illegible]			—			—			
[illegible]	8	[illegible]	[illegible]		[illegible]	—	—		—			
56	10	7900	[illegible]	7450	[illegible]	—	—	39660	—			
	11											
790		44300	202319		8310	—	3510	[illegible]	- (1250)	[illegible]		
08	13	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	+ [illegible]	[illegible]		
89	14	[illegible]	[illegible]	[illegible]	[illegible]	—		[illegible]	—	[illegible]		
962	15	8400	39855	[illegible]	2550	1500	1340	[illegible]	—	[illegible]		
67	16	[illegible]	[illegible]	6200	[illegible]	—	—	[illegible]	—	[illegible]		
71	17	[illegible]	35133	[illegible]	1400	—	—	[illegible]	—	[illegible]		
	18	[illegible]										
719		35500	199056		16300	1500	2350	[illegible]	+1250	[illegible]		
39	20	8500	40152	6200	2500	—	—	31910	—	[illegible]		
61	21	[illegible]	43618	[illegible]	1450	—	—	[illegible]	—	[illegible]		
37	22	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	+ [illegible]	[illegible]		
45	23	[illegible]	47300	[illegible]	[illegible]	—	110[illegible]	[illegible]	- [illegible]	[illegible]		
70	24	[illegible]	[illegible]	[illegible]	3800	—	—	[illegible]	—			
84	25	[illegible]	50543	6200	3500	—	[illegible]	[illegible]	—	[illegible]		
85	26	7100	41627	7450	1350	—	—	[illegible]	- (1250)	[illegible]		
748		45100	306767		23610	—	6250	[illegible]	- (1250)	[illegible]		
57	27	8600	[illegible]	6200	950	—	—	[illegible]	+ [illegible]	[illegible]		
67	28	6200	35056	[illegible]	600	—	—	[illegible]	—	[illegible]		
00	29	8800	48202	7450	450	—	—	[illegible]	- [illegible]	[illegible]		
60	30	8200	46011	7450	900	—	—	42580	—	[illegible]		
789		31800	177471		2900	—		162160	—	209271	[illegible]	[illegible]
6		188400	1051388		[illegible]	1970	12110	877810	- [illegible]	[illegible]		

SA 068406

Treals July 1977 #10

Date				Prince Albert	Aquapel	Reten 304	Sodium Bicarb	Dex Gloss	Teta
71									
2									
4									
5									
6									
7									
8									
9									
11									
12									
13									
14									
15									
16									
18									
19									
20									
21									
22									
[illegible]							10-0768-69		
25				[illegible]	[illegible]	[illegible]	150	3000	10[illegible]
26									
[illegible]									
[illegible]									
[illegible]									
[illegible]									
				[illegible]	3633	36	150	3000	10500
				[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Da

SA 068407

Trials July 1977 #11

Date	P Albert	Weyerhauser Bl	Celgar	Dixie Glass	Starch	Mississippi Chalk
71						
[illegible]						
4						
[illegible]						
[illegible]						
8						
9						
						11-[illegible] ✓
11		10185	3367	1750	75 D	
12						
13						
[illegible]						
15						
16						
		10185	3367	1750	75	
18						
19						
20						
21						
22						
23						11-[illegible] ✓ ✓
25	16731	5820				15400
26	12168		11-[illegible]43-44 ✓ ✓		150 [illegible]	19[illegible]
[illegible]						
[illegible]						
[illegible]						
[illegible]						
	28899	5820			150	17200
	28899	16[illegible]	3367	175[illegible]	[illegible]	17[illegible]

SA 068408

Bleached Pulps #10 July 1977

Date	Bl AHW	Bl ASW	481 Calgar	507 Prince Albert	454 Prince George	486 Sockeye 91
71			13[illegible]	[illegible]		
2						
			13468	21294		
4						
5						
6			15[illegible]	7605	14[illegible]	
7			[illegible]		[illegible]	
8			15392		21792	
9			12506			18915
			52910	7605	50394	18915
11			5772			8730
12			1[illegible]			1[illegible]
13			14[illegible]			[illegible]
14			115[illegible]			[illegible]
15						38[illegible]
16			[illegible]			33465
			47138			146470
18			14[illegible]			[illegible]
19			1[illegible]			[illegible]
20			15[illegible]			[illegible]
21			1[illegible]			174[illegible]
22			15[illegible]	1521		21825
23						
			7[illegible]26	1521		104760
25			[illegible]	7[illegible]		
26			1[illegible]	1[illegible]		
[illegible]						
			16354	25857		
			[illegible]	[illegible]		[illegible]

SA 068409

Neuphor
Size
8. ft per gal

Neuphor	Mexico Yellow	Calc Carb	Sodium Bicarb	Zeolite	Tita	Anselm	Size	Clay	Scriptsol	Reten	Aquapel	alum	#10 Starch
					[illegible]	[illegible]	350	1400				[illegible]	
					2100	2100	350	1400				992	
					[illegible]	[illegible]	[illegible]						
					[illegible]	[illegible]	350	[illegible]				[illegible]	
					4400	2400	400	800				1134	
					3700	1950	325					921	
					13050	8250	1375	3400				[illegible]	[illegible]
					2100	900	150					425	
					[illegible]	1950	325					921	
					[illegible]	[illegible]	[illegible]					[illegible]	
					[illegible]	[illegible]	375					[illegible]	
					5700	2400	400					1134	
					[illegible]	1800	[illegible]	300				[illegible]	
					26400	11550	1978	300				5669	[illegible]
					5500		315	800				1063	
					[illegible]		350					[illegible]	
					[illegible]		400					[illegible]	
					4050	1350	300					850	
					4800	2400	400					1199	
					27700	3750	1765	800				5238	[illegible]
					1500	750	125					[illegible]	
					4100	1800	300					1046	
					5600	2550	425					1482	[illegible]
					[illegible]	[illegible]	5893	[illegible]				[illegible]	

SA 068410

Date	Bl a H W	459 Bl a S W	Prince Albert	481 Calgary	485 Sockeye 91	Prince George
7 1		9750			29100	
2						
		7780			29100	
4						
5						
6		[illegible]			[illegible]	
7		[illegible]780			29100	
8				8658	26190	
9				7215	21825	
		20049		15873	107670	
11				5271	16005	
12				[illegible]	[illegible]	
13				9[illegible]2	[illegible]910	
14						
15						
16						
				12506	37830	
18						
19						
20						
21						
[illegible]						
[illegible]						
25			10140			
26			[illegible]			
[illegible]						
[illegible]						
[illegible]						
			18252			
			[illegible]	[illegible]	[illegible]	

SA 068411

Bleached Pulps #11 July 1977

Dit Glass	Mississippi Magnesia Chalk	Yellow	Size	Clay	Alum	Starch
		4000	400		1417	
		4000	400		1417	
		4[illegible]	[illegible]		[illegible]	
		4000	400		1417	
	25200					
	21000					
	46200	8200	820		2705	
	15400					
	[illegible]					
	2[illegible]					
	36400					
	7000					
	1200					100 [illegible]
	8200					100
	7[illegible]	12200	1220		43[illegible]	10[illegible]

SA 068412

SA 068413

July 1977 #10

Date	A Broke Used	B Pulps	8000 Storage Tank Inv	C Slab Waste	D Stub Rolls	E Reg Prod	F Good Prod	G Storage Tank Adj	A - - - Total Raw Mat	C+E+F Gross Prod	down + up − % Ret
71	5200	40712	6400	2450	[illegible]	—	40820	+ 1600	47512	45500	[illegible]
2		[illegible]									
	5200	40712		2450	2230	—	40820	+ 1600	47512	45500	958
4		[illegible]									
5		"									
6	6800	[illegible]	8000	1550	[illegible]	7830	35560	−(1600	[illegible]	[illegible]	[illegible]
7	4000	27990	4800	1250	1660	—	[illegible]	+ [illegible]	[illegible]	[illegible]	[illegible]
8	7300	45584	4800	4030	2180	—	40930	—	52884	47140	[illegible]
9	6000	37596	4800	1150	1430	—	37880	—	43596	40460	[illegible]
	24100	157699		7980	7920	7830	141720	+ 1600	183399	165450	[illegible]
11	3500	19052	6400	3300	—	—	4260	−(1600)	20952	7560	[illegible]
12	6500	37996	6400	1500	—	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
13	7500	[illegible]	6400	2750	—	[illegible]	[illegible]	—	51680	[illegible]	[illegible]
14	[illegible]	[illegible]	6400	[illegible]	—	[illegible]	[illegible]	—	51104	[illegible]	[illegible]
15	7200	[illegible]	6400	1800	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
16	7500	[illegible]	6400	[illegible]	460	—	41510	—	[illegible]	[illegible]	[illegible]
	39700	236436		11850	3670	5820	213815	−(1600)	274536	235155	857
18	8000	45570	6400	3950	1760	[illegible]	34785	—	[illegible]	43065	
19	7000	[illegible]	6400	2850	—	[illegible]	42400	—	[illegible]	45990	[illegible]
20	8000	[illegible]	6400	1950	—	740	46810	—	[illegible]	49500	
21	6000	[illegible]	6400	450	—	—	34550	—	[illegible]	35000	[illegible]
22	7500	[illegible]	—	[illegible]	—	—	[illegible]	+ 6400	[illegible]	50770	
23		[illegible]									
	365	[illegible]		12750	1760	[illegible]	205765	+ 6400	[illegible]	224325	871
25	6000	[illegible]	[illegible]	7730	300	[illegible]	7330	−(6400	[illegible]	[illegible]	[illegible]
26	5500	[illegible]	6400	5150	—	[illegible]	21400	—	[illegible]	[illegible]	[illegible]
27											
28											
29											
30											
	11500	97355		12880	300	17060	28730	−(6400)	102455	58970	576
	117[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	+ [illegible]	[illegible]	[illegible]	

Dar

SA 068414

July 1977
#11

Pat	Date	Broke Used	Pulps	Storage Tank Inv	Slag Waste	Stub Rolls	Ag Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	% Pat
58	71	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	[illegible]	[illegible]		
			[illegible]									
758		74[illegible]	43[illegible]80		100	—	—	405[illegible]	+1[illegible]	51[illegible]	[illegible]	[illegible]
	[illegible]											
	[illegible]											
[illegible]	[illegible]	5[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	—	[illegible]		
[illegible]	7	57[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]				
91	8	5700	60[illegible]	6200	4200	—	12[illegible]	[illegible]	—	6[illegible]		
728	9	4200	50[illegible]	6[illegible]	950	—	—	34720	—	5[illegible]	[illegible]	[illegible]
702		23600	198[illegible]12		6650	—	1270	143450	—	[illegible]	15[illegible]	[illegible]
61	11	4800	52[illegible]73	4950	9000	—	—	[illegible]600	+1250	58[illegible]	[illegible]	[illegible]
713	13	3700	[illegible]	[illegible]	5[illegible]	—	2410	23450	-([illegible])	[illegible]		
77	[illegible]	7900	[illegible]	[illegible]	415[illegible]	—	[illegible]	[illegible]	-([illegible])	[illegible]		
51	14	8[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	+[illegible]	[illegible]		
307	15	8[illegible]	43152	4950	400	—	—	41570	—	5[illegible]	[illegible]	[illegible]
[illegible]	16	7400	[illegible]	4950	[illegible]	—	—	[illegible]	—	[illegible]	[illegible]	
257		40800	254[illegible]		20750	—	5260	193930	+1250	296993	21[illegible]	74[illegible]
4	18	8700	37758	4950	2500	1250	—	3[illegible]	—	4[illegible]	[illegible]	[illegible]
55	19	7300	35760	4950	3[illegible]	[illegible]	—	32[illegible]	—	43[illegible]	[illegible]	[illegible]
77	[illegible]	7600	35[illegible]	4950	4200	[illegible]	[illegible]	27080	—	[illegible]	[illegible]	[illegible]
60	21	7200	33370	4950	3000	3000	—	27290	—	40[illegible]	[illegible]	[illegible]
43	22	4500	29680	—	4050	2570	—	29300	+4950	3[illegible]	[illegible]	[illegible]
	23		[illegible]									
71		35300	171976		16950	133[illegible]	2090	148510	+4[illegible]	21[illegible]	1[illegible]730	[illegible]
136	25	5900	55091	[illegible]	4000	—	2060	24060	-(6200)	5[illegible]	[illegible]	[illegible]
780	26	2400	[illegible]	[illegible]	6400	—	—	15580	—	[illegible]	[illegible]	[illegible]
	27		[illegible]									
	[illegible]		"									
	[illegible]											
	30		"									
76		8300	78621		10400	—	2060	39640	-(6200)	80721	5[illegible]100	64[illegible]
43		115400	747[illegible]		54[illegible]	133[illegible]	[illegible]	566110	+1[illegible]	[illegible]	[illegible]	[illegible]

SA 068415

Trials

August 1977
#10

Date	Weyerhauser	Sodium Bicarbonate	150 Starch	ULTRA WHITE 90 Clay	Tita
81					
2					
3					
4					
5					
6					
7					
		10 0772			
8	2420	15	50	300	650
9	9680	60	200	1200	2600
10					
11					
12					
13					
	12100	75	250	1500	3250
15					
16					
17					
18					
19					
20					
21					
26					
27					

SA 068416

Meals August 1977 #11

Date				
81				
4				
9				
10				
11				
12				
15				
16				
17				
18				
19				
20				
23				
24				
25				
26				
27				

SA 868417

Bleached Pulps #10 August 1977

Date	Bl. AHW	494 Bl. ASW	509 P. Albert	480 Colgar	484 Weyerhauser	425 Albacel
1						
2			[illegible]	[illegible]		
3			18[illegible]	[illegible]		
4			22905	[illegible]		
5			[illegible]	12480		
6			18[illegible]	[illegible]		
7			16[illegible]	[illegible]		
			112[illegible]	71040		
8				[illegible]	[illegible]	
9			[illegible]	[illegible]	11132	
10			[illegible]	[illegible]		
11			11198	3840		
12			14761	[illegible]		
13			[illegible]		[illegible]	
			75[illegible]	43[illegible]	46948	
15			7126	13440	18392	
16			8144	13[illegible]	15488	
17			7126	13[illegible]	13552	
18		2964	16797	[illegible]	14520	
19		2964	16288	13440	1936	4250
20			13[illegible]	12480		5525
21			13234	12480		5525
		5[illegible]	81[illegible]	[illegible]	[illegible]	15300
22			[illegible]	[illegible]		
23			[illegible]			
24			[illegible]	[illegible]		
25			[illegible]	[illegible]		
26			19851	12480		
27			4581	9600	10164	
			74[illegible]	53760	10164	

[illegible] 8 7 pe

SA 068418

Tanyatron
Lefe
8 lb per gal

Magnesium yellow	Calc carb	Sodium Bicarb	zeolite	Iota	Amolite	Soy	clay		Scryptolite	Celite	Aquapel	alum
				[illegible]	[illegible]	[illegible]						
				450	[illegible]	[illegible]						
				6000	2250	375						150
				[illegible]		[illegible]						
					[illegible]	[illegible]						
						[illegible]						
				7700	11100	1850						[illegible]
				4550	1950	[illegible]						[illegible]
				[illegible]	[illegible]	[illegible]						[illegible]
				4900	[illegible]	[illegible]						[illegible]
				2100	900	150						523
				[illegible]	[illegible]	175						610
				[illegible]	[illegible]	[illegible]						[illegible]
				23450	10050	1675						5841
				5350	2460	400						1395
				4650	2400	400						1525
				4500	2100	350						1221
1800				3150	1350	345						1308
4100						320						1395
3250						260						1134
3260						260						1134
12400				17250	8250	2335						8982
				3500	900	290	[illegible]					[illegible]
				[illegible]	900	150						[illegible]
				1200	450	75						[illegible]
				4000	1500	250						[illegible]
				5000	1950	325						1141
				4000	1500	250						872
				20300	7200	1340	2700					4844
42400				[illegible]	36600	7200	[illegible]					[illegible]

+ 16 Starch

[illegible]
[illegible]
[illegible]

SA 068419

Date	Bl aHU	494 Bl aSW	509 P albert	480 Celgar	484 Weyerhaeuser
81					
2		1976	14[illegible]	11520	
3			12[illegible]	11520	
4		9386	4581	1440	27588
5		10[illegible]74			[illegible]
6		10[illegible]74			[illegible]
7		[illegible]			[illegible]
		42484	31049	24480	119064
8		3952			11616
9					
10					
11					
12					
13					
		3952			11616
15			14761	15840	6776
16			16285	15360	
17			15[illegible]	14400	
18					
19					
20					
21					
			46319	45600	6776
[illegible]					
23					
24					
25			[illegible]	[illegible]	
26			24432	7680	
27			12725	11040	
			60062	25720	
		✓	[illegible] ✓	✓	✓

SA 068420

Bleached Pulps #11 August 1977

Dex Gloss	Mississippi chalk	Mexico Yellow	Sy	clay	alum	Starch
		4600	440		1559	
		[illegible]	[illegible]		[illegible]	
		[illegible]	[illegible]		[illegible]	
		[illegible]	[illegible]		[illegible]	
	31[illegible]	17[illegible]	1700		6023	
		1[illegible]	100		567	
		1600	160		567	
	24400					
	19[illegible]					
	18000					
	61600					
	23000					
	23400					
	16800					
	63200					
	164600 ✓	18[illegible] ✓	1860 ✓		6593 ✓	

SH 069421

Unbleached Pulps August 1977

Date	Dryden Net Dry	Be a&w	Miramichi	Bathurst	Be a&w	alum
1						
2						
3						
4						
5						
6						
7						
8	53[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
9	11155	1[illegible]	[illegible]	100[illegible]		[illegible]
10	9700	4[illegible]	9080	16[illegible]		[illegible]
11	10670		9988	19228		1557
12	10670	54[illegible]	19[illegible]	14[illegible]		[illegible]
13	16[illegible]		[illegible]	1[illegible]		
	64505	22238	53572	76712		8561
15						
16						
17						
18	20370		9534	9177		[illegible]
19	22310		10442	10051		1630
20	20370		7718	10925		1488
21	21340			19228		1059
	84390		27694	49381		6[illegible]
22	21340			19[illegible]		[illegible]
23	22310			20[illegible]		
24	11155		5902	157[illegible]		[illegible]
25	485		454	8[illegible]4		[illegible]
26						
27						
	55290		6356	55936		45[illegible]
	204185	22238	[illegible]	18[illegible]		17[illegible]

SA 068422

August 1977 #10

Date	A Broke Used	B Pieces	6400 Stirrup Tub Ow	C Glass Waste	D Stirs Rebs	E Pig Prod	F Good Prod	G Stirrup Tub Ally	A+E-G Total Raw Mat	C+D+E+F Gross Prod	% Rec
8 1	[illegible]										
2	6000	[illegible]	6400	1050	—	[illegible]	23610	+	[illegible]	29680	[illegible]
3	6000	36744	6400	5050	—	[illegible]	33960	—	[illegible]	45380	[illegible]
4	7500	45930	6400	1600	—	—	47880	—	53430	49480	[illegible]
5	[illegible]	[illegible]	6400	[illegible]	[illegible]	—	[illegible]	—	[illegible]	48380	[illegible]
6	[illegible]	[illegible]	6400	[illegible]	[illegible]	[illegible]	39680	—	[illegible]	[illegible]	[illegible]
7	[illegible]	34282	6400	1650	—	8370	24730	—	[illegible]	[illegible]	
	37500	216788		13550	1600	22320	214790	—	264288	252260	[illegible]
8	6600	41616	6400	1550	—	+	46600	+	48016	48150	[illegible]
9	6400	48287	6400	2100	2500	6640	24030	—	54687	35270	[illegible]
10	7500	43068	6400	2530	—	—	45240	—	50568	47770	[illegible]
11	3000	18188	6400	9300	—	4020	6670	—	21188	19990	94.4
12	3300	21316	6400	8200	—	—	5300	+	24616	13500	54.5
13	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]	42770	[illegible]
	34800	220730		38630	2500	16010	153930	—	255530	210470	[illegible]
15	8000	50608	6400	2600	—	1360	39890	—	58608	43850	73.8
16	7800	47642	6400	1700	—	—	50250	—	55442	51950	[illegible]
17	7000	41068	[illegible]	1500	—	[illegible]	47360	—	48068	50300	[illegible]
18	5700	45506	6400	2310	500	[illegible]	35060	—	51406	40010	77.8
19	4800	43298	6400	650	3280	9380	33160	—	48098	46470	96.6
20	3900	34749	6400	1650	1980	5360	28460	—	38649	40450	104.7
21	3600	34749	6400	550	3300	1800	42640	—	38349	48290	125.4
	41000	297620		10960	9060	24480	276820	—	338620	321320	94.1
22	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	
23	[illegible]	[illegible]	[illegible]	[illegible]	—	4100	[illegible]	—	[illegible]	14350	[illegible]
24	900	[illegible]	[illegible]	[illegible]	—	—	—	—	[illegible]	[illegible]	
25	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	22960	—	[illegible]	[illegible]	[illegible]
26	3900	41406	8000	4250	—	—	39300	—	45306	43550	[illegible]
27	2700	30095	6400	1250	—	—	31840	+1600	34315	33090	[illegible]
	19400	176487		31970	1600	22600	112730	+1600	[illegible]	168400	86.0
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	+16	[illegible]	[illegible]	

Drum + up — C+D+E+F = Gross Prod

SA 868423

August 1977
#11

Date	Burlap Used	Pulpo	Storage Tank	Slab Waste	Stuc Balls	Rag Prod	Good Prod	Storage Tank	Acid	Raw Mat		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	4	7600	48[illegible]	6200	1200	—	[illegible]	32990	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	42500	275777	[illegible]	9400	—	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	8	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	9	9200	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	10	8000	[illegible]	6200	2450	—	1795	37160	—	[illegible]	[illegible]	[illegible]
[illegible]	11	8800	39810	6200	2950	—	—	37970	—	49656	[illegible]	[illegible]
[illegible]	[illegible]	8800	[illegible]	6200	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]		50400	234655		17500	5490	6190	207730		284155	[illegible]	[illegible]
[illegible]	15	6000	61777	6200	5500	—	—	28730	—	67777	[illegible]	[illegible]
[illegible]	16	4500	[illegible]	6200	1550	—	—	36750	—	[illegible]	[illegible]	[illegible]
[illegible]	17	4200	47670	6200	1250	—	—	37870	—	51870	[illegible]	[illegible]
[illegible]	18	8800	39081	6200	1900	2350	4280	25860	—	47881	[illegible]	[illegible]
[illegible]	19	9200	42803	6200	400	5230	—	38650	—	52003	[illegible]	[illegible]
[illegible]	20	8400	39013	6200	1150	210	—	40460	—	47413	[illegible]	[illegible]
[illegible]	21	8800	40568	4950	550	5000	1110	36810	+1250	50618	[illegible]	[illegible]
[illegible]		49900	321760		12300	12770	5390	245120	+1250	[illegible]	[illegible]	[illegible]
[illegible]	23	8800	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	8800	[illegible]	7450	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	7200	[illegible]	4950	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	25	4800	[illegible]	[illegible]	[illegible]	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	26	4800	55512	4950	2200	—	170	38660	—	60312	[illegible]	[illegible]
[illegible]	27	3300	40565	7450	3450	—	—	31240	-(2500)	41365	[illegible]	[illegible]
[illegible]		37700	266764		11700	[illegible]	1240	204180	-(2500)	301964	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Trials September 1977
11

Date	510 P Albert	500 Buckeye HP2	R130 Starch	
[illegible]				
[illegible]				
31				
7 1				
[illegible]				
[illegible]				
[illegible]				
[illegible]				
7				
10				
1[illegible]				
12				
13	4080	4016	[illegible]	[illegible]
14				
15				
16				
17				
	4080	4016	200	
19				
31				
22				
[illegible]				
[illegible]				
[illegible]				
[illegible]				
[illegible]				
21				
31				
10 1				
	4080	4016	200	

SA 068425

Trials

September 1977 - #10

Date	
8	29
	30
	31
9	1
	2
	3
	5
	6
	7
	8
	9
	10
	11
	12
	13
	14
	15
	16
	17
	19
	20
	21
	22
	23
	24
	[illegible]
	27
	28
	29
	30
10	1

Date

SA 068426

Bleached Pulps #10 September 1977

Date	Bl AHW	501 Bl ASW	510 P Albert	481 Celgar	483 Weyerhauser	475 Dryden F/B
8 29				19240	15939	5700
30				17316	13041	5700
31				14430	21735	
9 1				8658	13041	
2			19590	3848	[illegible]	12350
3						
			19890	63492	[illegible]	23750
5						
6			21420			13300
7			19890			12350
8			19890			12350
9			21420			13300
10			19890	10582		1900
11			16830	10582		
			9340	21164		53200
12			[illegible]	12506		
13			[illegible]	13468		
14			12360	[illegible]		
15		5010	14790	12506		
16		5010	10200	9650		
17						
		10050	84660	59644		
19		8016	16320	15392		
20		8016	16320	15392		
21		501	21420	12988		
22			21420	13468		
23		[illegible]	17[illegible]	16[illegible]		
24						
		25050	92820	73594		
[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]		[illegible]		
28		[illegible]		105[illegible]	[illegible]	
29		[illegible]		14430	[illegible]	
30		[illegible]		[illegible]	[illegible]	
[illegible]		[illegible]		[illegible]		
		[illegible]	4080	836[illegible]	[illegible]	

[illegible] 76[illegible]

Tanglefoot
Soap
8 oz per gal

	Cabolite	Impid yellow	Calc Carb	Sodium Bicarb	Zeolite	Ita	Amlite	Soap	clay	Soapstone	Kieselguhr	Aquapel	alum	Starch
						5700	2550	[illegible]					1402	
						4500	[illegible]	[illegible]					[illegible]	
						4500	1100	375					1338	
						2700	1350	[illegible]					785	
						5100	2600	[illegible]					1402	
						7225	10800	1825					[illegible]	
						4200	2100	[illegible]					[illegible]	
						[illegible]	1750	[illegible]					[illegible]	
						5100	1700	[illegible]					[illegible]	
						5600	2100	350					1221	
						5200	1950	325					1134	
						4400	1650	275					959	
						28250	11700	1950					6802	
						[illegible]	1950	[illegible]					[illegible]	
						5600	2100	[illegible]					[illegible]	
						4500	1800	325					[illegible]	
		3150				1200	450	325					1022	
		3000						300					[illegible]	
		6150				16800	6300	1500					5189	
		4800						400					1221	
		4800						400					1221	
	720	900				2250	1800	375					1242	
	1800					2300	2100	350					1068	
		5200						425					1297	
	2500	15200				5200	3900	1970					6049	
		5400						450					1372	
		3000						[illegible]					762	
		3200						[illegible]					820	
		4500						375					[illegible]	
		5100						450					1372	
		4500						375					[illegible]	
		26100						2175					6638	
	2500	47450				75500	32700	9470					30970	

SA 068428

Date	Bl AHW	Bl ASW (501)	P Aebert (510)	Celgar (481)	Weyerhauser
8 29			21420	20202	
30			5100	18278	13524
31				19240	19320
9 1				12506	12558
2			4080	4810	[illegible]
3					
			30600	75036	65688
5					
6					
7					
8					
9			16320	15392	
10			15300	14430	
11			15300	14430	
			46920	44252	
12			[illegible]	13468	
13					
14					
15					
16					
17					
			14280	13468	
19					
20					
21					
22					
23					
24					
26			[illegible]	[illegible]	
[illegible]				769[illegible]	
[illegible]			[illegible]	[illegible]	
[illegible]					
1[illegible]1					
			71910	22607	
			[illegible]	1553[illegible]	

Alba

SA 068429

Bleached Pulps #11 September 1977

Albacar	Dry Glow	Mississippi chalk	Mapico yellow	Size	clay	alum	Starch
			4550	450		1450	
			3250	350		1346	
			[illegible]	400		1417	
			2600	260		721	
			[illegible]	350		1763	
			17950	1760		6335	
		25600					
		24000					
		24000					
		73600					
		[illegible]					
		22400					
		26800					
18000		6000					
19500							
37500		32800					
37500 ✓		128800 ✓	17950 ✓	1760 ✓		6335 ✓	

SA 068430

Unbleached #11 Pulps September 1977

Date	482 Dryden Nu Dry	Bl. A S W	446 Miramichi	430 Bathurst	alum
8 29					
30					
31					
9 1					
2					
3					
5					
6	22172		10258	[illegible]	[illegible]
7	[illegible]		[illegible]	[illegible]	
8	18316		[illegible]	8170	13[illegible]
9					
10					
11					
	60732		28078	27[illegible]	[illegible]
12					
13	[illegible]		[illegible]	[illegible]	[illegible]
14	[illegible]		8[illegible]	[illegible]	[illegible]
15	20244		9366	9030	1458
16	19280		8920	8600	[illegible]
17					
	69408		32112	30960	51[illegible]
19	24100		11150	10750	1771
20	22172		10258	[illegible]	1630
21	22172		[illegible]	9890	[illegible]
22	22172		10258	7890	163[illegible]
23	19280		8920	[illegible]	[illegible]
24					
	109896		50844	49020	8078
26					
27					
28					
29	21208		9812	9460	[illegible]
30	22172		9890	10258	[illegible]
101	21208		9812	9460	[illegible]
	64588		29514	29178	2[illegible]
		✓	✓	✓	✓
	[illegible]		140568	[illegible]	[illegible]

SA 068431

September 1977

Date	A Broke Used	B Purge	C Storage Tank Hr	D Slab Waste	E Slag Rock	F Ore Prod	G Ore Prod	Storage Tank adj	A+E+G Total Raw Mat	C+D+F Brass Prod	down + up −	% Rec
8 29	9000	51584	4800	1900	1160	—	51540	−(1600)	58954	35550		
30	7500	43182	[illegible]	600	2520	5670	45490	—	50682	51380		[illegible]
31	7500	44090	4800	1050	2310	2560	42750	—	51590	48310		[illegible]
9 1	4500	37174	4800	600	1610	—	30820	—	31674	35030		[illegible]
2	[illegible]	[illegible]	6400	800	2210	1270	37680	−(1600)	56359	41920		[illegible]
3	[illegible]			[illegible]	1410	9500	111630	−([illegible])	247259	413490		57
5	[illegible]											
6	7500	43970	6400	[illegible]	4670	—	45580	—	51470	51720		100
7	6000	[illegible]	6400	1100	[illegible]	—	47330	—	45565	50060		[illegible]
8	7000	41515	6400	800	350	[illegible]	45310	—	48515	47410		[illegible]
9	7000	42770	6400	800	—	—	51040	—	49770	51840		[illegible]
10	6500	[illegible]	6400	1250	—	—	50160	—	46747	51410		100
11	5500	[illegible]	[illegible]	5250	—	1110	42810	—	40237	47710		[illegible]
	39500	242804		9250	8070	4160	283130	—	282304	303610		1076
12	[illegible]	[illegible]	6400	[illegible]	—	2180	[illegible]	—	48571	[illegible]		[illegible]
13	[illegible]	[illegible]	6400	1100	—	—	[illegible]	—	49938	[illegible]		[illegible]
14	6000	[illegible]	[illegible]	1100	—	[illegible]	45490	—	[illegible]	[illegible]		[illegible]
15	6500	37131	—	2660	1180	4310	31600	+ 6400	50331	37750		79
16	[illegible]	35680	—	[illegible]	1380	3700	[illegible]	+	31480	27470		[illegible]
17	[illegible]											
	[illegible]	[illegible]	—	[illegible]	[illegible]	13500	185890	+ 6400	223124	211710		[illegible]
17	[illegible]	[illegible]	—	950	[illegible]	3640	[illegible]	—	534128	[illegible]		[illegible]
20	7500	41768	—	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]		[illegible]
21	[illegible]	41[illegible]	—	4750	[illegible]	—	35160	—	47824	40770		[illegible]
22	[illegible]	42438	—	[illegible]	[illegible]	2730	45960	—	49438	53280		[illegible]
23	5000	[illegible]	—	[illegible]	[illegible]	—	[illegible]	—	56236	45710		[illegible]
24	[illegible]											
	[illegible]	[illegible]	—	[illegible]	12140	6370	190910	—	259354	232310		576
	[illegible]	[illegible]	6400	[illegible]	[illegible]	—	[illegible]	[illegible]	50485	[illegible]		[illegible]
27	[illegible]	[illegible]	[illegible]		[illegible]	—	[illegible]	—	[illegible]	[illegible]		[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]		[illegible]
29	[illegible]	[illegible]	[illegible]	1300	[illegible]	3740	[illegible]	—	48870	[illegible]		[illegible]
30	[illegible]	[illegible]	—		4100	—	[illegible]	+ 6400	[illegible]	[illegible]		[illegible]
10 1	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]		[illegible]
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	—	275314	250380		[illegible]
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	+ [illegible]	[illegible]			

SA 068432

September 1977
#11

% Pet	Date	Broke Used	B Pulps	Storage Tank Inv	Slab Waste	Stub Rocks	Rej Prod	Good Prod	Storage Tank Adj	Total Raw Mat	Gross Prod	% Pet
103	8 29	[illegible]	46592	[illegible]	1400	—	—	[illegible]	-(2500)	[illegible]		
773	30	7600	41082	[illegible]	[illegible]	—	—	[illegible]		[illegible]		
942	31	14000	42960	[illegible]	1100	—	1780	[illegible]	—	[illegible]		
1043	9 1	9100	27924	7450	400	—	1910	24380	-(1250)	[illegible]		
745	2	5100	32476	[illegible]	500	—	—	37360	+1250	[illegible]		
	3	[illegible]										
857		49600	191034		[illegible]	—	[illegible]	170530	-(3750)	[illegible]		
1005	5	[illegible]										
	6	13800	42320	6200	1750	—	—	[illegible]	—	[illegible]		
143	7	14700	38640	6200	400	—	—	[illegible]	—	[illegible]		
1018	8	12600	34960	4950	650	—	1520	[illegible]	+1250	[illegible]		[illegible]
1042	9	4800	57312	4950	2950	—	2530	34880	—	[illegible]	[illegible]	[illegible]
1100	10	4800	53730	4950	1950	—	—	38440	—	[illegible]	[illegible]	[illegible]
1172	11	4500	53730	6200	1000	—	—	[illegible]	-(1250)	[illegible]	[illegible]	[illegible]
1076		55200	280692		8700	—	4050	226770	—	[illegible]	[illegible]	[illegible]
994	12	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	+1250	[illegible]		[illegible]
726	13	9800	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	-(1250)	[illegible]		
1167	14	12600	[illegible]	6200	[illegible]	—	[illegible]	[illegible]	—	[illegible]		
790	15	14700	38640	6200	1200	—	—	42430	—	53340	[illegible]	[illegible]
873	16	13300	36800	6200	1500	—	—	43250	—	50100	[illegible]	[illegible]
	17	[illegible]										
949		54300	190924		7000	—	8670	165410	—	[illegible]	181110	[illegible]
829	19	18200	46000	6200	[illegible]	3560	1040	[illegible]	—	[illegible]	[illegible]	[illegible]
921	20	16100	42320	6200	900	1560	—	[illegible]	—	[illegible]	[illegible]	[illegible]
853	21	16100	42320	[illegible]	750	[illegible]	1050	[illegible]	—	[illegible]	[illegible]	[illegible]
078	22	16100	42320	6200	550	5510	1110	[illegible]	—	[illegible]		[illegible]
813	23	13300	36800	6200	250	5750	—	35320	—	[illegible]	[illegible]	[illegible]
	24	[illegible]										
896		79800	209760		4700	20280	3200	183020	—	289560	[illegible]	[illegible]
882	26	5100	62978	6200	[illegible]	—	—	[illegible]	—	[illegible]	[illegible]	
873	27	4800	56176	4950	700	—		[illegible]	+1250	[illegible]	[illegible]	
912	28	3600	45643	6200	950	—	2480	[illegible]	-(1250)	[illegible]		
1016	29	9200	40480	6200	—	[illegible]	3140	29730	—	[illegible]	[illegible]	[illegible]
804	30	9200	42320	6200	550	5400	—	36830	—	[illegible]	[illegible]	[illegible]
987	31	12600	40480	6200	200	5175	—	[illegible]	—	[illegible]	[illegible]	
909		44500	288097		5450	15175	5620	207320	—	332597	[illegible]	[illegible]
940		283400	1160507		[illegible]	35455	[illegible]	[illegible]	-(3750)	[illegible]		[illegible]

SA 068433

Trials

October 1977 ...
#10

Date		Paper	Cellgar	[illegible]	Sage	Ansilex	Mississippi Lime	CHALK 130 Starch	Cabolite	Ita
10 3	10-0785	7455	2395				7000	250		
4										
5	10-0789 10 0790	2982	1916	152	50	300			[illegible]	[illegible]
6							10-0786 (Not a Trial Order)			
7										
8										
		10437	4311	[illegible]	50	300	7000	250	[illegible]	300
10										
11										
12										
13										
14										
15										
17										
18										
19										
20										
21										
22										
24										
25										
27										
28										
29										
		10437	4311	[illegible]	50	300	7000	250	[illegible]	[illegible]

SA 068434

Trials October 1977
11

ita	Date
✓	[illegible]
✓	5
✓	6
	10
	11
	12
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	21
	22
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	25
	26
	27
	28
	29
✓	

SA 068435

Bleached Pulps #10 October 1977

Date	Bl AHW	Bl ASW	P Albert	Celgar	Weyerhauser	Dryden F.B	Marathon
		470	497	479	476		515
10 3			[illegible]	[illegible]			
4			[illegible]	[illegible]			
5			[illegible]	[illegible]			
6			[illegible]	[illegible]			
7			17[illegible]	11496			
8			[illegible]	[illegible]			[illegible]
			95424	66102			
10			4473	16286	[illegible]92		
11				14370	[illegible]		7725
12				13412			21630
13				14370			23175
14				11496			18540
15							
			4473	69934	34272		71070
17				13412			21630
18		6110		[illegible]017			27810
19		6580		6706			21630
20		[illegible]		[illegible]			[illegible]
21		6110		62[illegible]7			20085
22							
		25850		41547			114330
24			[illegible]				[illegible]
25			14910				[illegible]175
26			[illegible]	[illegible]			[illegible]
27			[illegible]	[illegible]			
28			[illegible]	[illegible]			
[illegible]							
			27969	37362			46350
		[illegible]	187866	[illegible]7145	34272		[illegible]1759

7 [illegible] 8.07 p

SA 068436

Nyquphor
Sale
8.87 per gal

#10 Stone

Sta Loc	Tabs	Tempico Yellow	Calc Carb	Sodium Benz	Zolo	Tita	Analb	Sizz	Clay	Ultra White	Bright	Ret	Nyquphor	Alum
	[illegible]					[illegible]	[illegible]	[illegible]						
	1050					[illegible]	[illegible]	[illegible]						
	1900					[illegible]	[illegible]	[illegible]						
750	640		7500	150		[illegible]	600	100		[illegible]				
	1920					1500	1800	220						
	[illegible]													
750	7050		7500	150		7450	8100	1550		6000				4125
	960					4400	2550	420						[illegible]
						4500	2250	[illegible]						[illegible]
						4200	2100	350						1064
						2000	150	400	5300					[illegible]
						1500	600	375	4800					914
	960					17000	7650	1799	10100					5571
						1100	1400	438	5700					1268
		3900				250	2000	351	2500					940
		4200						210						610
		4500						225						650
		3900						195						520
		16500				1350	1600	1419	8450					3848
	2080					1950	1350	325						1268
	2250					2250	2250	375						1350
	2400					[illegible]		385	1000					[illegible]
	2080					1950	1950	358	2600					[illegible]
	2080					1950	1950	[illegible]	1800					[illegible]
	10890					10350	10350	1804	5400					5642
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
750	18900	16600	7500	150		38150	27700	6561	23950	6000				19112

SA 068437

Date		Bl AHU	Bl ASU	P Albert	479 Algar	Weyerhauser	515 Marathon Bl
10	3						
	4						
	5						
	6				7185		23175
	7				[illegible]		[illegible]
	[illegible]						
					14149		47895
	10				6706		21630
	11				479		[illegible]
	12						
	13						
	14				958		3090
	15						
					8143		26265
	17				7664		24720
	18				6706		21630
	19						
	20						
	21						
	22						
					14370		46350
	24						
	25						
	[illegible]						
	[illegible]		[illegible]		[illegible]		[illegible]
	[illegible]		[illegible]		[illegible]		[illegible]
	[illegible]						
			16450		21076		49955
			[illegible]		[illegible]		[illegible]

SA 068438

Bleached Pulps #11 October 1977

Albacar	Dex Gloss	Mississippi Chalk	Mapico Yellow	Size	Clay	Alum	Starch
21[illegible]							
	[illegible]						
21[illegible]	2[illegible]400						
	1[illegible]						[illegible]
	1400						[illegible]
	3400						
	24400						5[illegible]
	26[illegible]00						
	19[illegible]						
	46000						
			[illegible]	[illegible]		16[illegible]	
			4[illegible]	[illegible]		14[illegible]	
			9250	880		3118	
21[illegible]	92800		9250	880		3118	5[illegible]

SA 068439

SA 068440

Unbleached Pulps October 1977
#91

Date	467 Dryden Nil Dry	Bl A&W	44 Miramice	42 Bathurst	alum
10	19[illegible]4		9[illegible]	[illegible]	
[illegible]	[illegible]878		7[illegible]	[illegible]	[illegible]
[illegible]	[illegible]1482		[illegible]	7[illegible]	[illegible]
6					
[illegible]					
[illegible]					
	26774		27206	26167	[illegible]
10					
[illegible]	[illegible]7746		[illegible]	8151	[illegible]
[illegible]	19614		9366	9009	1488
13	19614		9366	9009	1488
14	19614		9366	9009	1488
15					
	76588		36572	35178	5810
17					
18					
19	21482		10258	9867	1630
20	19614		9366	9009	1488
21	18680		8920	8580	1417
22					
	59776		28544	27456	4535
24	20548		9812	9435	1557
25	19614		16502	2145	1488
26	14010		13380		1063
27					
28					
29					
	54172		39694	11583	4110
	247510		132016	100386	18613

SA 068441

October 1977
#10

Date	A Broke Used	B Pulps	C Storage Tank Inv	C Slab Waste	D Stub Rails	E Rej Prod	F Good Prod	G Storage Tank Adj	A+B+G Total Raw Mat	C+D+E Gross Prod	% Pot
10 3	7000	4972[illegible]	—	[illegible]	—	[illegible]	[illegible]	—	569[illegible]	31[illegible]	
4	8100	[illegible]	6400	350	—	—	[illegible]	-(6400)	45760	48800	[illegible]
5	6500	[illegible]	—	900	740	—	49810	+ 6400	53956	51[illegible]	
6	5600	[illegible]	6400	3400	2700	1050	41260	-(6400)	57966	48[illegible]	
7	[illegible]	[illegible]	8000	[illegible]	—	—	46620	-(1600)	39608	41[illegible]	
8	[illegible]										
	35100	229144		10[illegible]	3440	5020	209[illegible]	-(8000)	254244	228510	89.9
10	8500	50286	8000	500	960	—	45140	—	58786	46[illegible]	[illegible]
11	[illegible]	43[illegible]	4800	[illegible]	—	—	50[illegible]	+ 3200	54500	50[illegible]	
12	7000	[illegible]	6400	600	—	—	46220	-(1600)	47892	46[illegible]	[illegible]
13	7500	45458	6400	5120	3470	—	44930	—	52958	53520	[illegible]
14	5500	[illegible]	6400	600	3410	—	37970	—	42911	41980	[illegible]
15	[illegible]										
	36000	219447		7070	7840	—	224420	+ 1600	257047	239330	93.1
17	7500	48280	6400	500	4310	1150	42700	—	55780	48660	[illegible]
18	9550	52188	4800	[illegible]	3[illegible]	—	43980	+ 1600	63338	48[illegible]	[illegible]
19	8400	39326	6400	2350	2010	—	[illegible]	-(1600)	46126	38800	[illegible]
20	9000	[illegible]	6400	[illegible]	[illegible]	1[illegible]	4[illegible]	—	51135	44[illegible]	
21	7[illegible]	36517	6400	450	—	—	40520	—	43717	40970	[illegible]
22	[illegible]										
	41650	218416		5200	11335	2950	202300	—	260096	221785	[illegible]
24	7000	41712	6400	12850	—	4750	18440	—	48712	36[illegible]	[illegible]
25	69[illegible]	[illegible]	6400	7[illegible]	—	1160	309[illegible]	—	54710	39[illegible]	
26	5[illegible]	[illegible]	6400	[illegible]	—	—	[illegible]	—	[illegible]	[illegible]	
27	6[illegible]	[illegible]	6400	[illegible]	—	—	443[illegible]	—	47275	47[illegible]	
[illegible]		[illegible]	—	[illegible]	[illegible]	1360	[illegible]	+ 6400	[illegible]	50[illegible]	[illegible]
29	[illegible]										
	32200	215475		25750	1350	7270	187910	+ 6400	254075	222280	[illegible]
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	911[illegible]	

Da

SA 068442

October, 1977
11

Date	Broke Used	Pulps	Storage Tank Inv	Slab Waste	Stub Rails	Ry Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	Rate
10 3	13200	37989	[illegible]	[illegible]	[illegible]						
4	[illegible]	30753	[illegible]	[illegible]	[illegible]						
5	3200	41607	[illegible]	[illegible]	[illegible]	—	[illegible]				
6	4500	51360	[illegible]	[illegible]	10[illegible]	—	[illegible]				
[illegible]	[illegible]	54784	[illegible]								
99	45[illegible]	216493		[illegible]	15[illegible]	151[illegible]	[illegible]	—	[illegible]		
3	10 4[illegible]	48[illegible]	[illegible]	750	—	—	[illegible]				
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]				
78	[illegible]	37759	[illegible]	[illegible]	[illegible]	—	35[illegible]				
11	13 [illegible]900	37989	4950	1500	5[illegible]	—	35100	+ 3750	[illegible]		
78	14 7800	45437	[illegible]	1[illegible]00	5000	—	33460	—	53[illegible]		
	15 [illegible]										
31	46800	207646		6050	20435	—	177140	+ 1250	[illegible]		
72	17 5100	58584	6200	1950	—	—	21110	−(1250)	[illegible]		
71	18 [illegible]	48136	4950	1800	—	—	[illegible]	+ [illegible]	[illegible]		
41	19 14400	41607	6200	900	4260	—	33760	− [illegible]	[illegible]		
71	20 12600	37989	6200	[illegible]	55[illegible]	[illegible]	[illegible]	—	[illegible]		
36	21 11400	36180	6200	350	5380	—	37[illegible]	—	47[illegible]		
	22 [illegible]										
53	47400	222496		5500	15200	1080	161400	−(1250)	268646	[illegible]	
40	24 13800	39798	7450	1450	5300	—	34520	−(1250	[illegible]		
14	25 11000	38261	6200	[illegible]000	4705	—	32[illegible]60	+ 1250	[illegible]		
65	26 6000	27390	4950	[illegible]	3640	37[illegible]	[illegible]	− [illegible]	[illegible]		
05	27 [illegible]400	51432	6200	3[illegible]00	430	[illegible]	36450	−(1250)	[illegible]		
63	28 7[illegible]	46179	6[illegible]	200	—	—	4[illegible]	—			
	29 [illegible]										
75	46800	203060		7600	14075	6780	169410	—	249860	[illegible]	
7	186900	849695		26850	65590	9370	688820	—	10[illegible]		

SA 068443

Trials

November 1977
#10

Date			P Albert	Celgar	Sodium Bicarb	B130 Starch	Calc Carb	Clay	Tita	Brake
10	31	10-0795	2182	1925	20	200	1000	1000	1000	[illegible]
11	1									
	2									
	3									
	4									
	5									
			2982	1928	20	200	1000	1000	1000	
	7									
	8									
	9									
	10									
	11									
	12									
	14									
	15									
	16									
	17									
	18									
	19									
	21	10-0801	7455		30	300	1500	2100	1950	[illegible]
	22									
	23									
	24									
	25									
	26									
			7455		30	300	1500	2100	1950	
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

SA 068444

Trials November 1977
#11

Trials	Date
30	10 31
	11 1
	2
	3
	4
	5
30	
	7
	8
	9
	10
	11
	12
	14
	15
	16
	17
	18
	19
700	21
	22
	23
	24
	25
	26
00	
30	

SA 068445

Bleached Pulps #10 November 1977

Date	Bl A H W	470 Bl A S W	497 P Albert	482 Calgar	Weyerhauser	501 Marathon	472 F B Dryden	Brake
1 31			14910	9640				
1 1			[illegible]	10604		[illegible]		
2			[illegible]			14028		
3			22365			15030		
4			19383			[illegible]		
5								
			78406	20244		[illegible]		
7		[illegible]	[illegible]			[illegible]		
8		4700	9940	2892		7014		
9		[illegible]	4970	8676			[illegible]	
10				14460			18408	
11				[illegible]			15576	
12								
		13630	[illegible]	48682		24048	45312	[illegible]
14			1988	[illegible]			5664	[illegible]
15			13916	20244				
16			[illegible]	18798				
17			[illegible]	15798				
18			10934	15906				
19								
			52683	85314			5664	
21			14910	9640				
[illegible]			[illegible]	[illegible]				
[illegible]			[illegible]	[illegible]				
[illegible]								
[illegible]								
			[illegible]	35665				

✓ ✓ ✓ ✓ ✓ ✓

SA 068446

[redacted]

Napthol
Lift
S. Tapergal

Brake		Oakite	Napco Yellow	Oak Cord	Sodium Acid	Ita	Amalgam	Lize	clay	Serpent	Eten	Tapergal	alum
500		1600				[illegible]	1500	[illegible]	500				[illegible]
[illegible]		[illegible]				[illegible]	[illegible]	[illegible]	[illegible]				
[illegible]		2540				[illegible]	[illegible]	325	1000				1221
7500		2460				3000	2250	375	2250				[illegible]
5000		2050				2600		325	325				[illegible]
13600		1056				13[illegible]	7750	16[illegible]	8800				57[illegible]
[illegible]			5[illegible]					[illegible]					[illegible]
[illegible]			3[illegible]					150					[illegible]
[illegible]			[illegible]					175					[illegible]
11000						3650		325	3700				1134
7500						3700	2400	4[illegible]	3[illegible]				13[illegible]
18550			13550			7350	2400	1325	5900				5[illegible]21
4500						2000	1200	200	1600				678
7000						3000	2100	350	2800				1221
500						5[illegible]	1750	325	600				[illegible]
500						5850	[illegible]	325					1023
5000						4950	1650	275					899
7500						21550	8850	1475	5000				4961
[illegible]						4200	1500	250					752
[illegible]						6300	2100	350					[illegible]
500		800				4350	1750	[illegible]					[illegible]
9000		800				14850	5[illegible]	925					[illegible]
✓			✓	✓		✓	✓	✓	✓				✓
20500		1120	13550			56[illegible]	24750	5375	19700				17658

#10 Star

14000

41[illegible]0

SA 068447

Date	Bl A H W	470 Bl A S W	P Albert	482 Algar	Weyerhauser	501 Marathon	472 Dryden	Broke
10 31		9970		10122		21042		8600
11 1		8930		4338		24048		6100
2			14910			15030		4800
3			14910			15030		4500
4			13916			14028		3900
5								
		17800	43736	14460		89178		27900
7			38760					[illegible]
8			13916				15880	5100
9							30208	4500
10				4338			12744	2400
11								
12								
			52682	4338		1002	61832	18500
14								
15								
16								
17								
18								
19								
21			15904	15424				[illegible]
[illegible]			[illegible]	15424				[illegible]
[illegible]			[illegible]	[illegible]				
[illegible]								
[illegible]								
			44730	43380				[illegible]
		[illegible]	[illegible]	[illegible]178		[illegible]	61832	[illegible]

SA 068448

Bleached Pulps #11 November 1977

...ke	Stafok Starch	Calc Carb	Mapico yellow	Size	alum	Starch
00			[illegible]	[illegible]	[illegible]	
[illegible]			[illegible]	[illegible]	[illegible]	
[illegible]		[illegible]				
[illegible]		18000				
[illegible]		[illegible]				
700		55[illegible]	8000	8[illegible]	[illegible]	
[illegible]	1000	6100				
[illegible]	850	17100				
[illegible]	800	[illegible]				
100	450	12600				
[illegible]00	3100	58200				
[illegible]		19200				
[illegible]		19200				
[illegible]		15600				
00		64[illegible]				
[illegible]	3100	167700	8[illegible]	8[illegible]	[illegible]	

5A 068449

Date

SA 068450

Unbleached Pulps #11 November 1977

Date	Dryden Nu Dry	Bl A&SW	Miramichi	Bathurst	alum	Drake
10 31						
11						
2						
3						
4						
5						
7						
8						
9						
10	8748			7722	638	[illegible]
11	21384		9780	10276	1557	[illegible]
12						
	30132		9780	18018	2177	[illegible]
14	20412		10269	9009	1488	[illegible]
15	22356		11247	9867	1630	[illegible]
16	22356		11247	9867	1630	
17	22356		11247	[illegible]	[illegible]	
18	18468		9291	8151	1346	
19						
	105948		53301	46761	7724	4[illegible]
21						
22						
23	2916		1467	1287	[illegible]	
24						
25						
26						
	2916		1467	1287	215	11[illegible]
	131996		64548	66066	10134	

SA 068451

November 1977
#10

down T
up —

Date	A Broke Used	B Pulper	E Storage Tank Adj	C Slab Waste	D Stub Rolls	E Rej Prod	F Good Prod	G Storage Tank Adj	A+B+G Total Raw Mat	C+D+E Gross Prod	% Rat	Da
10 31	6300	41130	6400	4550	1440	—	24270	-(6400)	41[illegible]	30270	72 5	
11 1	7000	43374	6400	2750	—	2730	37800	—	50374	43280	[illegible]	1
2	7000	43792	6400	3850	—	—	44070	—	50792	47920	[illegible]	
3	7500	50070	6400	2300	—	4050	35990	—	57570	42340	[illegible]	
4	6000	41664	8000	600	—	—	44540	-(1600)	46064	45140	[illegible]	
5	Down											
	33800	220030		14080	1440	6780	186670	-(8000)	245830	208970	[illegible]	
7	9000	47131	6400	3450	2600	1790	29210	+1600	57731	37050	[illegible]	
8	5000	28196	6400	3650	1650	1690	13310	—	33196	20300		
9	16050	31599	6400	800	3000	3700	36920	—	47649	44420	[illegible]	
10	11000	39543	6400	4500	200	—	39050	—	50543	43780	56 6	
11	7500	47930	8000	950	—	—	46760	-(1600)	53830	47710	[illegible]	
12	Down											
	48550	196399		13350	7450	7180	165280	—	244949	193260	78 7	
14	4500	26720	4800	5900	—	—	19200	+3200	34620	25100	[illegible]	
15	7000	42910	6400	1400	—	4130	42520	-(1600)	48310	48050	99 5	
16	6500	41[illegible]	6400	1650	1000	3600	31680	—	41345	37930	[illegible]	
17	6500	37845	4800	750	[illegible]	—	41580	+[illegible]	47945	41430	[illegible]	
18	5000	33715	4800	650	1800	—	39610	—	38715	42060	[illegible]	
19	Down											
	29500	185[illegible]35		10350	1900	773[illegible]	174590	+3200	217935	197570	90 7	
21	6400	46135	6400	6700	720	—	28930	-(1600)	50935	36350	71 4	
22	7000	45[illegible]	6400	450	2600	[illegible]	4[illegible]310	—	50120	48080		
23	6500	[illegible]	8000	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
24	[illegible]											
25	[illegible]											
26	"											
	19900	128595		7950	3320	542[illegible]	106440	-(3200)	145[illegible]	123130	84 7	
	1[illegible]	[illegible]		45730	1711[illegible]	27110	63[illegible]	-([illegible])	8[illegible]	[illegible]		

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November 1977
#11

% Pat	Date	Broke Used	Pulps	Storage Tank Inv	Slab Waste	Stub Rolls	Reg Prod	Good Prod	Storage Tank Adj	Total Raw Mat	[illegible]	[illegible]
73[illegible]	[illegible]	[illegible]	45654	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]		
5[illegible]	111	[illegible]	41[illegible]	[illegible]	[illegible]			[illegible]				
74[illegible]	[illegible]	[illegible]	50640	6[illegible]	[illegible]		[illegible]	[illegible]	—	[illegible]		
736	3	[illegible]500	47940	6[illegible]	135[illegible]	—	—	[illegible]	—	[illegible]		
780	4	3[illegible]00	44744	[illegible]	70[illegible]	—	—	[illegible]	+ [illegible]	[illegible]		
	5	[illegible]										
[illegible]		[illegible]7700	[illegible]30474		[illegible]	—	371[illegible]	[illegible]	+ [illegible]	[illegible]		
[illegible]	7	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	8	5100	50746	4[illegible]0	4[illegible]	—	5[illegible]	[illegible]	+ [illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]			[illegible]		
866	10	6400	46602	6200	3350	—	3500	27950	−(1250)	5175	[illegible]	
886	11	8400	41460	[illegible]	[illegible]	5370	10[illegible]	35[illegible]	−(250)	[illegible]		
	12	[illegible]										
787		30700	237084		[illegible]	5370	12620	157[illegible]	−(2500)	[illegible]	[illegible]	
725	14	11200	39690	6200	2050	4190	2250	26[illegible]	+ 1250	5[illegible]	[illegible]	
995	15	7200	43470	4950	900	4250	—	39520	+ 1250	5[illegible]		
785	16	7200	43470	[illegible]	11[illegible]	710	—	[illegible]	—	[illegible]		
927	17	9200	43470	[illegible]	[illegible]	5[illegible]	[illegible]	33[illegible]0	−(1250)	5[illegible]		
1086	18	7200	35910	4950	1000	5735	1030	34320	+ 1250	44[illegible]	[illegible]	
	19	[illegible]										
907		46[illegible]	206010		5650	20415	6370	1690[illegible]	+ 2500	251517	[illegible]	[illegible]
714	21	3600	50528	4950	4250	—	—	25620	—	54128	[illegible]	[illegible]
957	22	4500	50528	4750	950	—	—	[illegible]	—	5[illegible]		
575	23	[illegible]	46721	7450	550	—	[illegible]	[illegible]	[illegible]	[illegible]		
	[illegible]	[illegible]										
	[illegible]	[illegible]										
	26	[illegible]										
847		13600	147780		5750	—	1200	98660	−(2500)	15[illegible]		
847		11[illegible]	823348		26470	25805	23900	[illegible]	−(1250)	940[illegible]		

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Trials December 1977
#10

Date	
11	28
	29
	30
12	1
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SA 068454

Treals

December 1977
#11

Date	AHW	Terrace Bay	Celgar	Calc Cars	Starch		Brake
11 28							
29							
30							
12 1							
2							
3							
5							
6		2484	954	[illegible]	[illegible]		
7	1884	8694	1431	6300	350	11-[illegible]	[illegible]
8							
9							
10							
	1884	11178	2385	8700	550		[illegible]
12							
13							
14							
15							
16							
17							
19							
20	471	414	954	1200	11-[illegible]		
21							
22							
23							
24							
	471	414	954	1200			
26							
27							
28							
29							
30							
31							
	2355	11592	3339	9700	550		

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Bleached Philips #10 December 1977

Date	471 a HW Bl	470 Bl a SW	503 Prince Albert	477 Calgary	414 Terrace Bay	Broke
11 28			[illegible]	14310		[illegible]
29			[illegible]	17310		[illegible]
30			21126	13356		[illegible]
12 1			10563	6678		[illegible]
2			1659	10141		[illegible]
3						
			93558	59148		[illegible]
5			21126	13356		[illegible]
6			21126	13356		[illegible]
7			24144	15264		[illegible]
8			22635	9540	4140	[illegible]
9			21126		11592	[illegible]
10						
			110157	51516	15732	[illegible]
12			24144		13248	[illegible]
13			[illegible]		13248	[illegible]
14			19617		10764	[illegible]
15			22635		12420	[illegible]
16			20623	1431	10764	[illegible]
17						
			111163	1431	66444	[illegible]
19			14084	20034		[illegible]
20			11066	15731		[illegible]
21			14084	13356	5796	[illegible]
22		6580	1710[illegible]	10494		
23		[illegible]	[illegible]			
24						
		10020	80486	59615	5796	[illegible]
26			[illegible]			
27		4230	15165			[illegible]
28		6580	28165			
29		6110	6636	19080		[illegible]
30		1410		5759		
31						
		18330	52312	55809		[illegible]
		[illegible]	[illegible]	[illegible]	[illegible]	

SA 068456

Naughton
Lye
8 Aquagel

Brooks		Cabelle	Magnesite yellow	Carb	Sodium Bicarb	Ash	Soda	Lye	clay	Aquagel	Sodium Silicate	Aquagel	alum	Ash Starch
000		2400				2250	2250	[illegible]					1256	
500		[illegible]				5500	2250	375					[illegible]	
[illegible]		2240				2100	2100	350					1145	
500		1120				1050	105[illegible]	175					57[illegible]	
[illegible]		1760				165[illegible]	165[illegible]	275					[illegible]	
1000		7840				2550	9300	1550					5067	[illegible]
500		2200				2100	2100	350					1145	
7000		2240				[illegible]	[illegible]	350					1145	
8000		2560				2650	2400	400	450				1308	
7500		2400				600 2200	600 1100	375					1226	
500		2240				2800	1400	350	1400				1145	
6500		11640				12450	9700	1825	1850				5969	[illegible]
500		2560				3200	1600	400	1600				1308	
7700 500		2560 2080				3200 2600	1600 1300	400 325	1600 1300				1308 1063	
000		160				1834	916	496	500				1150	
7000						1867	933	280	4550				1068	
1700		7360				12701	6349	1811	14050				5897	78[illegible]
000						5300	2650	280					1068	
000						4400	2200	220					839	
500						2200	1100	280	4900				[illegible]	
000						1867	933	280	4900				[illegible]	
500						1733	867	240	350[illegible]				916	
000						15500	7750	1300	13300				4959	16[illegible]
000						2167	1083	150					697	
000						4267	2133	280					1068	
000						2100	1050	260	320				99[illegible]	
000		2560				3200	1600	320	3200				1112	
000		2560				11734	5866	1040	6750				3859	[illegible]
1200		39400				64922	38965	7556	35950				25753	

SA 068457

Date	471 Bl A.H.W	Bl A.S.W	503 P. Albert	477 Colger	414 Terrace Bay	Brake
11 28						
29						
30						
12 1						
2						
3						
5			17605	8109	4968	[illegible]
6				6678	17388	[illegible]
7					18216	--
8						
9						
10						
			17605	14787	40572	12800
12						
13						
14						
15						
16				954	828	—
17						
				954	828	—
19	5652			18126	10764	5100
20	7065			14310	6210	[illegible]
21				12402	28980	1000
22		8460	2012	7632	17388	
23		[illegible]	[illegible]			
24						
	12717	15046	23138	52470	63342	32500
26						
27						
28						
29		10810	1509	31482		
30		940		2262		
31						
		11750	1509	34344		1[illegible]
	12717	26790	[illegible]	[illegible]555	4748	[illegible]

SA 068458

Bleached Pulps #11 December 1977

Mica Chalk Calc Carb	R130 Starch Mapco	alum	Size
32000	300		
16800	1400		
13200			
52000	1700		
1200			
1200			
21100			
17000			
		4950	1700 480
		400	1417 400
		2800	992 280
38100		11750	4107 1160
		5100	1630 460
		400	142 40
		5500	1772 500
91300	1700	17250	5881 1660

SA 068459

Date	471 Bl. A H W	Bl. A S W	503 P. Albert	477 Calgar	414 Terrace Bay	Broke
11 28						
29						
30						
12 1						
2						
3						
5			17605	8109	4968	[illegible]
6				[illegible]	17388	[illegible]
7					18216	[illegible]
8						
9						
10						
			17605	14787	40572	[illegible]
12						
13						
14						
15						
16				954	828	—
17						
				954	828	—
19	5652			18126	10764	5100
20	[illegible]			14310	6210	[illegible]
21				12402	28980	[illegible]
22		[illegible]	[illegible]	[illegible]	17388	[illegible]
23		[illegible]	[illegible]			
24						
	[illegible]	15046	23138	52470	63342	3250
26						
27						
28						
29		[illegible]	1509	31482		[illegible]
30		940		2262		[illegible]
31						
		11750	1509	34344		[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SA 068460

Bleached Pulps #11 December 1977

Broke	Miss Chalk Calc Carb	R 130 Starch Mapico		alum	Size
-600	22000	300			
700	16800	[illegible]			
-300	13200				
12800	52000	1700			
—	1200				
—	1200				
5100	21100				
-200	17000				
0000			4950	1700	480
000			4000	1417	400
5200			2800	992	280
32500	38100		11750	4109	1160
600			5100	1630	460
400			400	142	40
000			5500	1772	500
5300	91300	1700	17250	5881	1660

SA 068461

Unbleached Pulps December 1977

Date	Dryden Air Dry	Miramichi	Bathurst	alum
11	[illegible]	[illegible]	9284	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	9706	[illegible]
	[illegible]	[illegible]	[illegible]	[illegible]
5				
	110808	55146	[illegible]	5177
5				
6				
7				
8	4860	[illegible]	2110	354
9	17496	8802	7596	[illegible]
10				
	22356	11247	9706	[illegible]
12	19440	9780	8440	1417
13	22356	11247	9706	1630
14	20412	10269	8860	1488
15	19440	9780	8440	1417
16	18468	9291	8018	1346
17				
	100116	50367	43466	7298
19				
20				
[illegible]				
[illegible]				
23 24	1944		1688	[illegible]
	1944		1688	142
26 27	[illegible]356	11247	[illegible]	1630
28	19440	9780	8440	[illegible]
[illegible]				
30	11664	5868	5064	[illegible]
31				
	53460	26895	23210	3877
	288684	144[illegible]	126178	21643

SA 068462

December 1977

Date	A Binder Used	B Sugar	8000 Storage Tank Inv.	C Gas Waste	D Stock Cake	E Re Pell	F Good Prod	G Storage Tank adj	A+B+G Total Raw Mat	C+E+F Gross Prod	% Ret
11 28	8000	46000	8000	4000	—	2500	40100	—	54000	47100	[illegible]
29	7500	[illegible]	7000	750	3450	—	47700	—	53890	50960	[illegible]
30	7000	41872	6400	1900	3400	1210	39500	+ 1600	49872	46250	[illegible]
12 1	3500	20636	6400	1850	2050	—	21930	—	24136	25830	[illegible]
2	5000	[illegible]	9600	550	[illegible]	—	31300	−(3200)	35128	[illegible]	
3											
	31000	187640		9650	10850	5710	180740	−(1600)	217040	204950	94.4
5	7500	42832	6400	850	2500	2380	38650	+ 3200	53532	41380	[illegible]
6	7000	41272	6400	350	3000	—	44360	—	48272	47910	[illegible]
7	8000	47868	6400	950	3970	4420	41490	—	57868	50830	87.8
8	7500	45190	6400	800	3880	1170	45100	—	52690	50950	[illegible]
9	6500	40908	6400	450	3900	—	46740	—	47408	51090	[illegible]
10											
	36500	200700		3400	17450	7970	216340	+ 3200	259770	245160	94.4
12	8500	49552	4800	800	3150	—	38320	+ 1600	59652	42270	[illegible]
13	7700	49152	6400	300	3850	2120	44120	−(1600)	55252	50690	[illegible]
14	5500	37986	6400	700	2550	—	37360	—	43486	40610	93.4
15	8000	45971	4800	3800	3500	3780	36250	—	53971	47330	[illegible]
16	7000	40448	6400	2290	3300	7200	39460	−(1600)	45848	42250	92.[illegible]
17	[illegible]										
	36700	223109		7910	16350	13400	185510	−(1600)	258209	223150	86.4
19	7000	43748	6400	3010	—	6700	27300	—	50948	37010	[illegible]
20	5000	32617	6400	1000	—	12130	25150	—	38617	39800	[illegible]
21	7500	41716	6400	2600	3120	6130	34210	—	49216	42000	[illegible]
22	7000	[illegible]	[illegible]	2600	[illegible]	—	41960	−(1600)	47556	48900	[illegible]
23	5500	[illegible]	800	[illegible]	3140	4550	25000	—	41634	36340	[illegible]
	35000	197561		12560	10640	26510	154500	−(1600)	227961	204230	89.6
26	[illegible]	[illegible]	6400	[illegible]	—	—	14170	+ 1600	34868	19440	[illegible]
27	7000	43828	6400	[illegible]	—	—	46190	—	50828	46940	[illegible]
29	6000	35086	6400	3600	[illegible]	2280	39870	—	44986	49190	[illegible]
30	7000	49019	6400	3450	—	—	42970	—	56019	46400	[illegible]
31	[illegible]										
	25000	160101		13070	3440	2280	143200	+ 1600	186701	161990	86.8
	[illegible]	[illegible]		[illegible]	[illegible]	53870	[illegible]	—	1149687	[illegible]	[illegible]

D.

SA 868463

December 1977
#11

Bt	Date	Brake Used	Pulp	Storage Tank Inv	Slab Waste	Stub Rails	Rep Prod	Good Prod	Storage Tank Adj	Total Raw Mat	Gross Prod	Bt
875	[illegible]	[illegible]	[illegible]	[illegible]	1700	[illegible]	4140	[illegible]	[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]		
1070	12 1	18400	43307	[illegible]	1150	5370	—	40710	—	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
	[illegible]	[illegible]										
944		69700	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	76 3
829	5	[illegible]	[illegible]	6200	[illegible]	—	8000	21100	[illegible]	[illegible]		[illegible]
993	6	4500	48304	4950	7450	—	[illegible]	[illegible]	+ 1250	[illegible]		
878	7	5400	[illegible]	[illegible]	3450	—	—	40100	—	[illegible]	[illegible]	[illegible]
967	8	1800	9415					Down				
1078	9	6800	33874	8700	5200	3020	4030	17030	-(3750)	48 59	[illegible]	[illegible]
	10											
944		24100	194670		18300	[illegible]	[illegible]	103770	-(3750)	[illegible]	[illegible]	[illegible]
709	12	8400	[illegible]	4950	2350	3610	960	28540	+ 3750	[illegible]	[illegible]	[illegible]
917	13	9200	43307	4950	1300	4240	1050	34960	—	[illegible]	[illegible]	[illegible]
934	14	8400	[illegible]	4950	1850	4310	1040	34810	—	[illegible]	[illegible]	[illegible]
877	15	14000	37660	4950	500	4230	1030	34500	—	5166[illegible]	[illegible]	[illegible]
922	16	8700	38759	[illegible]	100	4570	5650	31000	-(1250)	46209	[illegible]	[illegible]
	17	Down										
864		48700	196931		6100	21040	9730	163810	+ 2500	248131	[illegible]680	80 4
726	19	5100	55642	6200	3200	—	—	30440	—	60742	[illegible]	[illegible]
1033	20	4500	[illegible]	6200	1950	—	—	34080	—	[illegible]	[illegible]	
855	21	10000	46812	6200	4600	+	1680	28160	—	[illegible]	[illegible]	
029	22	8000	[illegible]	7450	1000	—	—	33940	-(1250)	[illegible]	[illegible]	
873	23	6000	[illegible]	7450	3650	—	5100	17960	—	[illegible]	[illegible]	
	24	Holiday										
896		33600	224389		14400	—	6780	144580	-(1250)	256732	115760	[illegible]
558	26	Holiday										
	27	9600	43309	[illegible]	[illegible]	—	[illegible]	[illegible]	+ [illegible]	[illegible]	[illegible]	
924	28	7600	[illegible]	4950	400	—	—	41030	+ 1250	[illegible]	[illegible]	
1074	29	9600	47361	4950	6600	—	—	35460	—	58961	[illegible]	
829	30	5200	26838	6200	900	—	5130	22830	-(1250)	30788	[illegible]	
	31		[illegible]									
868		32000	157168		10400	—	6570	129400	+ 1250	190418	146390	76 1
704		208100	987819		55050	49100	44470	723780	+ 1250	1197169	[illegible]	[illegible]

SA 068464

Trials

January 1978
110

Date									
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SA 068465

Texas

January 1978

Date	A&W Bl	Buckeye Bl	Calgar	Dryden Bl	Crestbrook	Calc Carb	Alta Pet C 130
1							
2		7176	[illegible]				[illegible]
4	14.3		[illegible]	[illegible]		[illegible]	[illegible]
5							
6							
	14.3	7176	[illegible]	[illegible]		[illegible]	[illegible]
10							
11							
12							
13							
14							
16							
17							
18							
19							
20		2990			7770		125
21							
[illegible]							
		2990			7770		125
23							
24							
25							
26							
27							
28							
	1413	10166	34[illegible]	12712	7770	370	[illegible]

SA 068466

Bleached Pulps #10 January 1978

Date	AHW Bl	ASW Bl	508 Prince Albert	487 Celgar	452 Bl Dryden	518 Bl Crestbrook			Brake
12									
3				12175	13560				[illegible]
4				13636	18984				[illegible]
5				[illegible]	20346				
6				13636	18984				
7				13636	54[illegible]	15545			[illegible]
8				13631		21756			
				81307	77292	37[illegible]76			4[illegible]
9				1[illegible]9		170[illegible]			[illegible]
10			12192	19[illegible]7					6[illegible]
11			16256	18506					7000
12			15[illegible]	1[illegible]75					5[illegible]
13			30480						5[illegible]
14									
			74168	68607		17074			31000
16			33[illegible]						7000
17			16764	18[illegible]9					[illegible]
18			6604	25324					[illegible]
19			71[illegible]	[illegible]					[illegible]
20			6604	25324					710[illegible]
21			7116	[illegible]					[illegible]
22			609[illegible]	23276					8[illegible]
			83312	146587					61000
23			6604	25324					71[illegible]
24			4572	7532					6[illegible]
25			1[illegible]19[illegible]	[illegible]					[illegible]
26			[illegible]28	[illegible]					[illegible]400
27			1828	[illegible]88					1[illegible]
28									
			59944	88634					40700
			2174[illegible]	[illegible]17	77[illegible]	5437[illegible]			17

SA 068467

Phosphor
8.7 per gal

#10 starch

Brake	Zinc	Cabolite	Mexico yellow	Calcabolution Carb	Bicarbolite	Analite		Size	clay	Sorptal	Peten	Aquagel	alum
[illegible]		160				[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]						[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]						[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]						[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]						[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]		[illegible]				[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]		1440				[illegible]	9999	1164	[illegible]				[illegible]
[illegible]		[illegible]				[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]		800				[illegible]	1267	[illegible]	[illegible]				[illegible]
[illegible]		[illegible]				[illegible]	1554	[illegible]	[illegible]				[illegible]
[illegible]		1760				[illegible]	[illegible]	[illegible]	[illegible]				719
[illegible]		[illegible]				[illegible]	[illegible]	[illegible]	[illegible]				[illegible]
[illegible]		8960				13267	6683	[illegible]	12500				[illegible]
[illegible]		2080				[illegible]	1217	[illegible]	[illegible]				850
[illegible]		960				[illegible]	400 1600	300	[illegible]				[illegible]
[illegible]		[illegible]				[illegible]	900 1150	[illegible]	3700				[illegible]
[illegible]		[illegible]				[illegible]	1020 1167	[illegible]	[illegible]				716
[illegible]		2080				2167	972 1083	225	3900				850
[illegible]		[illegible]				[illegible]	1080 1300	350	[illegible]				[illegible]
[illegible]		[illegible]				[illegible]	900 1100	300	3680				785
1000		13440				17167	14288	2225	26100				6033
[illegible]	600	2080				2033	374 1077	[illegible]	3900				850
1300	675	1440				1400	700	[illegible]	2700				589
[illegible]	1050	[illegible]				[illegible]	1283	350	[illegible]				[illegible]
[illegible]	900	1520				[illegible]	1100	300	[illegible]				785
[illegible]	750	800				2165	1083	300	[illegible]				725
[illegible]	3775	8080				10363	5565	1500	17900				3925
[illegible]	[illegible]	[illegible]				[illegible]	[illegible]	[illegible]	[illegible]				[illegible]

SA 868468

Date	471 Bl a HW	Bl a SW	P Aebert	487 Calgar	Terrace Bay	452 Dryden	Bl Crestbrook	Brake
12								
3	4239			6818		14916		[illegible]
4	6594			6818		12656		[illegible]
5	471			487		904		--
6								
7								
8								
	11304			14123		28476		9[illegible]0
9								
10								
11	8949		12700	15584				[illegible]
12	7065		2032	14610			5698	[illegible]
13	7065			14610			7770	[illegible]
14								
	23079		14732	44804			13468	14700
16								
17								
18								
19								
20	565[illegible]			5844			1245[illegible]	[illegible]
21	6123			11201			828[illegible]	[illegible]
22	6123		10668	16555				[illegible]
	17898		10668	33603			20720	12900
23	6594			20454				[illegible]
24		799[illegible]	17272	8279				[illegible]
25		[illegible]	17[illegible]	[illegible]				[illegible]
26		7770	17272	[illegible]				[illegible]
27		6110	1320[illegible]	[illegible]				[illegible]
28								
	6594	30080	65024	51622				29900
	58875	[illegible]	[illegible]	1441[illegible]		28476	34178	[illegible]

SA 068469

Bleached Pulps #11 January 1978

...oke	Calc Carb	Starch	Mipico Yellow	alum	Size
[illegible]	16800				
[illegible]	16800	700			
	1200	50			
[illegible]	348[illegible]	750			
[illegible]	[illegible]				
700	19000				
[illegible]	[illegible]				
700	61400				
[illegible]	16800				
[illegible]	18150				
[illegible]	21200				
700	56150				
[illegible]	16800				
[illegible]			4050	1204	[illegible]
[illegible]			[illegible]	[illegible]	[illegible]
[illegible]			[illegible]	[illegible]	[illegible]
[illegible]				921	[illegible]
700	16800		10850	4533	1280
[illegible]	169150	750	10850	4533	1280

SA 068470

JAN. 1978

SLURRY

TITANIUM ANSILEX ZEOLEX

61157 28075 2500

SA 068471

Unbleached Pulps #11 January 1978

Date	Dryden Nu Dry	Miramichi	Bathurst	alum	[illegible]
12					
[illegible]					
4					
5	[illegible]	[illegible]	[illegible]	[illegible]	
7	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]			[illegible]	
	11648	41076	35784	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]		
10		20532	[illegible]	[illegible]	
11					
12					
13					
14					
	6804	36675	31950	2905	[illegible]
16	211300	[illegible]	[illegible]	1771	[illegible]
17	23328	11736	[illegible]	1700	[illegible]
18	22356	[illegible]	[illegible]	1630	
19	19440	9780	8520	1417	[illegible]
20					
21					
22					
	89424	44988	39192	6518	5
23					
24					
25					
26					
[illegible]					
[illegible]					
	177876	122739	106926	15375	

SA 068472

January 1978
#10

Date	A Broke Used	B Pulpe	6400 Storage Tank No.	C Slab Waste	D Stub Coils	E Rej Prod	F Good Prod	G Storage Tank Adj	A+B+G Total Raw Mat	C+D+E+F Gross Prod	% Pat
12	7[illegible]										
3	6000	32490	6400	6450	—	—	30090	—	39390	36470	[illegible]
4	7000	37250	6400	600	—	—	45250	—	46250	45[illegible]	[illegible]
5	7500	41[illegible]50	6400	350	—	—	45370	—	51650	48700	[illegible]
6	7[illegible]	39850	8000	[illegible]	—	1100	37[illegible]	-(1600)	45[illegible]	40100	[illegible]
7	7000	42880	8000	1900	—	—	43900	—	49880	45800	[illegible]
8	70[illegible]	46[illegible]	8000	5100	—	[illegible]	40[illegible]	—	49[illegible]	48[illegible]	
	41500	242453		15550	—	3270	241470	-(1600)	282352	265290	94[illegible]
9	650[illegible]	45[illegible]	6400	2[illegible]410	—	4140	8980	+1600	53833	35530	[illegible]
10	6500	[illegible]	4800	1100	—	14560	26460	+1600	47519	42120	89.6
11	70[illegible]	44452	6400	9950	—	4790	28540	-(1600)	49882	43280	[illegible]
12	5300	[illegible]	6400	5400	—	1620	[illegible]	—	41245	[illegible]	[illegible]
13	5500	41040	6400	8450	—	1320	33470	—	46540	43[illegible]	92.9
14	[illegible]										
	31000	206419		47310	—	30430	123260	+1600	239019	203000	84.9
16	7000	43580	6400	4780	—	6700	[illegible]	—	50380	35130	[illegible]
17	7800	4[illegible]13	6400	4300	—	7840	34580	—	52843	46720	88.4
18	9100	43318	6400	[illegible]150	—	13[illegible]0	37940	—	52318	4[illegible]710	81.6
19	9500	4[illegible]	6400	[illegible]	—	12[illegible]	48[illegible]	—	57524	50130	[illegible]
20	9100	42268	6400	150	—	1370	46860	—	54358	48380	89.0
21	[illegible]	48[illegible]	6400	550	—	—	51490	—	58624	50040	88.[illegible]
22	5[illegible]	4[illegible]52	6400	—	—	—	5[illegible]	—	50892	50[illegible]	[illegible]
	61000	315939	[illegible]	13530	—	18580	295200	—	376939	327310	86.8
23	9100	45258	6400	3250	2260	2610	35150	—	54358	43270	71.6
24	[illegible]	37044	8000	7300	2190	6850	20850	-(1600)	41744	37160	[illegible]
25	[illegible]	[illegible]	80[illegible]	400	[illegible]	6[illegible]	41450	—	56084	51730	[illegible]
26	8400	[illegible]590	8000	5[illegible]	[illegible]	—	[illegible]8080	—	47996	51970	[illegible]
27	7[illegible]	[illegible]777	6400	650	[illegible]00	—	42310	+1600	48677	46160	94.5
28	[illegible]										
	40700	207959		12100	14700	15680	157810	—	248859	230290	92.5
	17401	9[illegible]769		85490	14700	69960	85[illegible]	—	114716	102510	[illegible]

down - up -

Dai

SH

068473

January 1978
#11

Date	Broke Steel	Pulp	Storage Tankage	Mat Waste	Stub Reels	Pay Roll	Board Thrd	Storage Tankage	Total Mill	Grand Total	Bal
3	4500	53377	6200	4500	—	13[illegible]	16[illegible]	—	[illegible]		
4	[illegible]00	52254	6200	1800	—	12[illegible]	31[illegible]	—	[illegible]		
5	7600	37018	[illegible]	[illegible]	—	4[illegible]	[illegible]	—			
[illegible]	[illegible]	37740	[illegible]	[illegible]	[illegible]						
[illegible]	7200	43[illegible]	—	[illegible]	[illegible]						
40	43600	266171		1[illegible]	12440	[illegible]	175[illegible]	[illegible]			
60	1[illegible]00	369[illegible]	[illegible]	15[illegible]	4400	—	[illegible]	[illegible]			
56	10 14[illegible]00	38430	496[illegible]	500	3910	7390	[illegible]	—	5[illegible]		
28	11 [illegible]	61[illegible]	4[illegible]	[illegible]	250	[illegible]	[illegible]	—	[illegible]		
41	12 1500	48[illegible]	6[illegible]	1[illegible]	—	[illegible]	[illegible]	[illegible]	51[illegible]		
29	13 4200	47445	6[illegible]	1700	—	—	3[illegible]	—	51[illegible]		
	14 [illegible]										
547	42100	232912		7600	8600	9[illegible]	16760	+ [illegible]	[illegible]		70[illegible]
97	16 10000	47175	4950	2600	28[illegible]	1030	[illegible]	+ [illegible]	[illegible]		
84	17 16200	45299	6200	3500	860	[illegible]	31780	— [illegible]	[illegible]		
216	18 16100	43[illegible]	6200	1150	—	7460	34[illegible]	—	5[illegible]		
72	19 13300	37740	4[illegible]	1100	—	3550	41500	+ 1250	[illegible]		
90	20 3900	51613	6200	3600	—	—	12150	— [illegible]	[illegible]		
280	21 3900	43162	6200	7450	—	31[illegible]	16820	—	47[illegible]		
36	22 5100	54549	6[illegible]	5400	—	1160	17[illegible]	—	5[illegible]		
86.8	685 00	323528		24850	37 40	19600	182090	—	3920 28	230280	587
796	23 3900	43848	6200	500	—	—	37630	—	47748	[illegible]	[illegible]
90	24 7200	37931	6200	75[illegible]	—	4760	22790	—	45 31	35 [illegible]	[illegible]
720	25 6800	37281	6200	1550	290	1550	[illegible]	—	4[illegible]	[illegible]	[illegible]
283	[illegible] 6800	37281	6200	1550	1350	[illegible]	[illegible]	—	[illegible]		[illegible]
748	27 5200	25909	6200	500	1440	—	32580	—	31[illegible]	[illegible]	[illegible]
	28 Down										
925	29900	182250		11120	3080	6290	169870	—	21[illegible]15	[illegible]	[illegible]
194	184100	1004861		56470	28880	46[illegible]70	696[illegible]	—	11[illegible]	[illegible]	[illegible]

SA 068474

Trials

February 1978
#10

Date	
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SA 068475

Trials

February 1978
#11

Date	AHW	P. Albert	Did Glos	Broke
1 30				
31				
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3				
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9				
10				
11				
12				
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15				
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17				
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20				
21				
22				
23				
24	477	1527	1200	600
25				
26				
	477	1527	1200	600
	477	1527	1200	600

SA 068476

Bleached Pulps #10 February 1978

Date	477 aHW Bl	502 aSW Bl	509 Prince Albert	485 Celgar	469 Bl Dryden	498 Bl Domtar				13 [illegible]
30			25759	6770						[illegible]
31			22390	5335						[illegible]
21			18324	4865						[illegible]
2			24132	5820						[illegible]
3			24432	5820						[illegible]
4										
			115543	28130						26[illegible]
6			30540	7575						[illegible]
7			26468	6305						6000
8			28504	6790						7500
9			17306	17460						7000
10			11198	16005						5500
11				33950						10000
12				26675						5500
			114016	114460						46500
13				17915	15477					6500
14				12610	18291					7000
15				12610	18291					6500
16				12610	18291					6500
17			5090	8730	19698					6500
18			5090	64500	90048					33000
20			11198		15477					6000
21			26977		5618					6[illegible]
22			[illegible]							[illegible]
23			[illegible]			9790				6[illegible]
24			18324			11952				6[illegible]
25			18324			11952				6[illegible]
26			18324			11952				
			158299		21105	36852				45500
			[illegible]	[illegible]	111153	[illegible]				

7 [illegible] 5 [illegible] 5 [illegible] pulp

1978

Date	Phosphoric Acid 8 #/gal	per gal	Zeolite	Phosphate	Magnesium Hydroxide	Calc Carb	Sodium Bicarb	Ferric Chloride	Analite	Soya	Clay Purpose	Filter	Aquapel	alum
7000								[illegible]	1083	[illegible]	3500			[illegible]
5500			1650					2567	1283	275	[illegible]			719
4500			1350					[illegible]	[illegible]	275	[illegible]			587
[illegible]			1800					[illegible]	1000	[illegible]	[illegible]			
[illegible]			1800					[illegible]	[illegible]	[illegible]	[illegible]			[illegible]
2850			6600					10217	5138	1415	14500			3724
[illegible]	120		1050	1280				[illegible]	175	250	2750			791
6000	368			2080				2567	1283		3250			850
7500	448			2240				2917	1483		3500			916
7000	448			2240				2917	1635		3500			916
5500	352		300	1440				2500	1250		2750			720
7000	448		2100					2500	1400		3500			716
5500	352		1650					1833	917		[illegible]			717
46500	2536		5100	9280				18284	9141	250	25000			6018
6500	480		2100					2440	1220		3500			916
7000	416							2167	1083		3250			850
6500	416							2167	1083		3250			850
6500	416		150					2167	1083		3250			850
6500	448		700					2333	1167		3500			916
33000	2176		2950					11024	5536		16750			4382
6000	352		550					1834	916		2750			719
6500	416			2080				2934	1466		3250			850
6500	472		350	2080				2667	1333		3250			850
6500	520			1920				2551	1274		3200			850
6000	384							3800	1900		2400			785
6000	384							4000	2000		2400			785
6000	384							3733	1867		2400			785
43500	2912		900	6080				21517	13356		19650			5624
[illegible]	7624		15500	15360				60944	33141	1125	73500			19752

SA 068478

Date	477 Bl a H W	Bl a S W	509 P Albert	485 Calgary	521 Crestbrook	460 a S W Trans	Broke
1 30							
31							
2 1	954			1940	1042		
2	8109			16490	8857		[illegible]
3	7155			14550	7815		[illegible]
4							
	16218			32980	17714		9200
6	7632			16975	6773		5100
7	7155			21825			4200
8							
9							
10							
11							
12							
	14787			38800	6773		9300
13							
14							
15			21378			6440	5500
16			29013			8740	7600
17			9162	14550		7360	4400
18			59553	14550		22540	17500
20	4293		13743	4365		1380	3600
21			17306	5335		6900	450[illegible]
22	7632		19342	4850			[illegible]
23	7155		22905				4500
24	6678		21378				[illegible]
25	1431		21378			5060	4200
26			19851			5980	3600
	27189		135963	14550		19320	27900
	58194		195456	100883	24487	41860	[illegible]

SA 068479

Bleached Pulps #11 February 1978

Broke	Calc cars	Dix Gloss	Starch	Mapico yellow	Alpha Size	Alum
—		2400				
		20400				
[illegible]	[illegible]					
[illegible]00	16200	22800				
[illegible]100	[illegible]700					
[illegible]200	[illegible]000					
9300	35700					
5500				3500	448	99[illegible]
7600				3800	6[illegible]	1[illegible]
4400				3200	512	113[illegible]
17500				10500	1568	3472
3600		12400		600	96	213
4500		18400				
4800		19200				
4500		18000				
[illegible]700		16800				
4200		16800				
3600		15600				
7900		117200		600	96	213
[illegible]3900	52500	140000		11100	1664	3685

SA 068480

Feb. 1978

Slurry

Date		Titanium	Ansilex	Zeolex
1	30	2000	1000	
	31	5000	2500	
2	1	2000	1000	
	2	2000	1000	
	3	-0-	-0-	
	4	Down	—	
		11000	5500	
	6	4000	2000	
	7	—	—	
	8	—	—	
	9	4000	2000	
	10	4000	2000	
	11	4000	2000	
	12	4000	2000	
		20000	10000	
	13	2000	1000	
	14	2000	1000	
	15	2000	1000	
	16	2000	1000	
	17	2000	1000	
	18	10000	5000	
	20	4000	2000	
	21			
	22	2000	1000	
	23	[illegible]	2000	
	24	4000	2000	
	25	4000	2000	
	26			
		18000	9000	
		59[illegible]	295[illegible]	

5A 068481

Unbleached Pulps February 1978

Date	Dryden Nu Dry	Maramiche	Bathurst	Dryden S B	Semi Bl A S W	Alum	
130	[illegible]	[illegible]	[illegible]			[illegible]	
31	[illegible]	[illegible]	[illegible]			[illegible]	
[illegible]	1928	[illegible]	15336	[illegible]	[illegible]	1275	
4							
	26510	26406	[illegible]	6566	6750	[illegible]	
6							
7							
8			11928	6566	6300	[illegible]	
9			16188	8911	[illegible]	[illegible]	
10			17040	9380	9000	[illegible]	[illegible]
11	13496		5112	9380	[illegible]	1417	
12	21208			[illegible]	[illegible]	[illegible]	
	34704		50268	44555	42750	6731	[illegible]
13	25064			9380	3600	1417	[illegible]
14	[illegible]			[illegible]		[illegible]	
15	3856			3752		283	[illegible]
16							
17							
18	53020			30954	3600	[illegible]	[illegible]
20							
21							
22							
23							
24							
25							
26	964		852			65	
	964		852			65	[illegible]
	115198	26406	99184	82075	53100	14517	

SA 068482

February 1978

Date	A Broke Used	B Pulp	6400 Storage Tank Inv.	C Flat Waste	D #10 Stub Bale	E Big Prod	F Good Prod	G Storage Tank adj	A+B+G Total Raw Mat	C+E+F+F Gross Prod	% Rec
1 30	7000	41424	6400	2400	—	1970	35610	—	48424	39980	8[illegible]
31	5500	37866	6400	3350	—	5140	25820	—	43356	34310	79.1
2 1	4500	31264	4800	650	—	9000	19010	+1600	37364	28660	76.7
2	6000	38352	6400	[illegible]	—	940	37950	-(1600)	42752	42840	[illegible]
3	5500	37427	8000	[illegible]	—	—	50060	-(1600)	41327	51110	[illegible]
4	[illegible]										
	28500	186323		11400	—	17050	168450	-(1600)	213223	196900	92.3
6	[illegible]	49590	4500	[illegible]	1240	2110	[illegible]	+3200	60790	44460	73.1
7	6000	42321	4800	350	3310	2660	46910	—	48321	53220	110.2
8	7500	46732	4800	700	—	—	49770	—	54232	50470	93.1
9	7000	46854	6400	1900	—	16630	[illegible]	-(1600)	52254	46500	[illegible]
10	5500	36795	6400	3600	—	3830	33120	—	42295	40550	95.9
11	7000	45598	6400	4550	—	13990	29990	—	52598	48230	91.7
12	5500	34177	6400	3550	—	20150	15870	—	39677	39570	99.1
	46500	302067		16450	4550	59370	242610	+1600	350167	323010	92.3
13	6500	44662	6400	4950	—	10120	36360	—	51162	51230	100.1
14	7000	39417	4800	3770	1390	3930	32970	+1600	48017	42270	88.0
15	[illegible]	37817	6400	450	—	—	[illegible]	-(1600)	42717	53150	[illegible]
16	6500	39167	8000	790	—	10710	33270	-(1600)	44067	44770	101.6
17	6500	41666	8000	2100	—	4280	34830	—	48166	41210	85.6
18											
	33000	202729		12160	1390	29030	190050	-(1600)	234129	232630	99.4
20	6000	36677	4800	1100	—	4000	35280	+3200	45877	40380	88.0
21	6500	40751	6400	1050	—	7780	36680	-(1600)	47651	45510	95.5
22	6500	44637	6400	3050	—	7330	34840	—	51137	47620	[illegible]
23	6500	47728	6400	[illegible]	—	11000	33060	—	54228	45810	84.4
24	6000	41560	6400	2800	7750	22350	15320	—	47560	48220	101.4
25	6000	39660	6400	3350	—	6800	32800	—	45660	42950	94.1
26	6000	41160	6400	1300	—	5630	33630	—	48460	40610	83.8
	43500	295173		14400	7750	66940	221610	+1600	340573	310700	91.2
	[illegible]	[illegible]		54410	[illegible]	173390	866752	—	1135[illegible]	1[illegible]	[illegible]

February 1978
#11

Ret	Date	A Brine Used	B Pulp Tubs	Storage Tubs	Steel Waste	Steel Bells	Pay Roll	Brine Pond	Storage Tank	Total Tonnage
[illegible]	13	[illegible]	40820	6200	[illegible]	4510	—	[illegible]	—	[illegible]
79	14	[illegible]	41920	[illegible]	1100	[illegible]	[illegible]	[illegible]	—	[illegible]
767	15	6800	31383	—	1300	5080	—	[illegible] + 6[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	53854	[illegible]	1700	1160	150	[illegible]	— 6[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
19.3		34400	221308		6650	18410	615	16[illegible]	—	[illegible]
731	6	[illegible]	51080	[illegible]	[illegible]	1070	[illegible]	3[illegible]	—	5[illegible]
1102	7	4200	44980	4950	1420	1050	—	36710 + 1250	[illegible]	[illegible]
931	8	6000	24701	4950	3450	1760	1520	19750	—	30[illegible]
890	9	7600	33649	4950	3750	3720	—	3[illegible]	—	41[illegible]
959	10	8000	35420	4950	2500	3680	—	36[illegible]	—	43[illegible]
917	11	8000	36388	4750	750	4760	—	39810	—	4[illegible]
997	12	[illegible]	41[illegible]	4[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]
922		47700	268337		14570	20400	1520	235740 + 125[illegible]		317297
1001	13	8000	38044	7450	2100	3760	2100	27050 − (6500)		4[illegible]
880	14	[illegible]	41920	[illegible]	[illegible]	2800	—	30710 − [illegible]50		51970
944	15	[illegible]	39374	[illegible]	[illegible]	—	7[illegible]	[illegible]	—	46[illegible]
1016	16	7600	42161	7450	1450	2860	[illegible]	31[illegible]50 − (1250)		48511
856	17	4400	34784	6200	750	150	[illegible]	[illegible] + 1250		[illegible]
19.4	18	35500	196285		7600	4570	22260	154460 − (1250)		230535
880	20	3600	36877	6200	2900	—	1760	10510	—	[illegible]
965	21	4500	47941	4950	[illegible]	—	—	31[illegible] + 1250		53691
923	22	4800	51024	6200	300	—	—	[illegible] − (1250)		54574
844	23	4500	48060	6200	800	—	—	31[illegible]	—	[illegible]
1014	24	4500	48060	4950	2150	—	—	36410 + [illegible]		[illegible]
941	25	4200	44669	4950	1200	—	—	36040	—	48867
838	26	4400	43847	4950	550	—	—	39710	—	47647
712		3[illegible]500	319878		10100	—	1760	233050 + 1250		351[illegible]
934		[illegible]	[illegible]		3[illegible]120	4[illegible]	31[illegible]	795210 + [illegible]		1155153

SA 068484

Trials

March 1978
#10

Date		P. Ackert	Calgar	Bl Domtar	Dry Glen	Sta Lak R 130	Ultra Cote 90	Sod Board	Analex	Tita	Brake	Da
2 27												
28							10-0825					
3 1		12096	7632		4000	800	5600	80	1733	3466	2400	3
2												
3												
4												
		12096	7632		4000	800	5600	80	1733	3466	2400	
6												
7	10-0825		6678	10899	3500	700	4900	70	1433	2869	[illegible]	
8												
9												
10												
11												
12												
			6678	10899	3500	700	4900	70	1433	3117	2100	
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
27												
28												
29												
30												
31												
4 1												
2												
		12096	14312	10899	7500	1500	10500	150	3166	6583	4[illegible]	

SA 068485

Trials March, 1978
#11

Brake	Date
	2 7
	2
400	31
	2
	3
	4
400	
100	7
	8
	9
	10
	11
	12
100	
	13
	14
	15
	16
	17
	18
	19
	20
	21
	22
	23
	24
	25
	27
	28
	29
	30
	31
	41
	2
00	

SA 068486

Bleached Pulps #10 March 1978

Date	491 a HW Bl	a SW Bl	504 Prince Albert	477 Celgar	474 Bl Dryden	519 Bl Domtar	460 a SW Trans	Broke
2 27			18144			12456		[illegible]
28			10584			7266		[illegible]
3 1			10584	5724		1038		[illegible]
2			19656			13494		[illegible]
3			18144			12456		
4								
			77112	5724		46710		24000
6			19656			13494		[illegible]
7			6048			4152		[illegible]
8			18144			12456		[illegible]
9			28224				6440	[illegible]
10			20160				4600	[illegible]
11			24192				5520	[illegible]
12			18144				4140	4500
			134568			30102	20700	3750
13			22176				5060	[illegible]
14			16632	11442			2760	[illegible]
15			17136	17172				[illegible]
16			16632	7632		3114		[illegible]
17			22680			15570		[illegible]
18			19656			13494		[illegible]
19			18144			12456		[illegible]
			133056	36252		44634	7820	37600
20			13104			15051		[illegible]
21			11088			17127		[illegible]
22			14112			21795		[illegible]
23			15120			23355		[illegible]
24			13104			20241		[illegible]
25								
			66528			97572		31000
27			[illegible]			21279		[illegible]
28						[illegible]		[illegible]
29						[illegible]		
30						[illegible]		
31						36330		[illegible]
4 1						[illegible]		
2						[illegible]		
			12096			22[illegible]664		[illegible]
			[illegible]	41976		[illegible]	285[illegible]	[illegible]

SA 068487

[redacted]

Brake	Alphaverge	Zenbit Cabolite	Myrrh yellow	Calc Carb	Sodium Borate	Ita	Analit	Size	Clay	Scrubbed Kitten	Aquapil	alum
	Nyquphor Silex 8 Th pergal 8# per gal											#10 Stare
750	384	640				1917	[illegible]		465			[illegible]
[illegible]		1120				1667	[illegible]		175			[illegible]
[illegible]	80			1900	50	300	150		[illegible]			[illegible]
500	520	[illegible]				[illegible]	[illegible]		[illegible]			561
[illegible]	480	[illegible]				[illegible]	1600		[illegible]			[illegible]
1000	1688	5120		1900	50	1333	8583		11000			3016
[illegible]	520	1920				3467	[illegible]		[illegible]			[illegible]
500	160	640				733	[illegible]		800			[illegible]
1500	480	[illegible]				2500	[illegible]		[illegible]			[illegible]
500	336		4200									916
[illegible]	[illegible]		3000									625
500	288		[illegible]									[illegible]
1500	216		[illegible]									58
7500	2240	4480	13500			7200	5050		5800			4841
[illegible]	264		3200									[illegible]
700				[illegible]	110	[illegible]	[illegible]		[illegible]			[illegible]
1000				[illegible]	140	2750	[illegible]		4500			[illegible]
1700	240			1000	50	[illegible]	[illegible]		[illegible]			[illegible]
500	600					5667	[illegible]		1500			[illegible]
500	520					5000	2600		1300			[illegible]
1000	480					4800	2400		1000			550
9600	2104		3300	14500	300	23667	12433		16000			3978
500	440	1120				[illegible]	[illegible]		[illegible]			[illegible]
1000	440	960				2767	[illegible]		2450			779
1000	560					3667	[illegible]		3400			[illegible]
1500	600					3000	1500		3750			[illegible]
1000	520	320				2667	1333		3150			[illegible]
1000	2560	2400				14734	8516		14650			4534
1000	520	2000				3034	1516		2600			[illegible]
500	520					3467	[illegible]		[illegible]			[illegible]
1000	560					[illegible]	[illegible]		[illegible]			[illegible]
1100	600					[illegible]	[illegible]		[illegible]			[illegible]
1200	560					3800	1800		2750			[illegible]
1500	520					2600	1500		3250			[illegible]
[illegible]	560					[illegible]	[illegible]		[illegible]			[illegible]
[illegible]	3840	2030				23901	16198		19900			6779
[illegible]	12432	14020	16800	16400	350	8974	5048		67350			23142

SA 068488

Date	491 AHW Bl	ASW Bl	P. Albert	Doontar	Calgar	460 Trans SW	Brake
227							
28							
31							
2							
3							
4							
6	3928				25758	4600	[illegible]
7	7365				21465		[illegible]
8	6874				20034		[illegible]
9	7556				22896		4800
10	7856				22896		[illegible]
11	7856				22896		[illegible]
12	5892				17172		[illegible]
	47627				153117	4600	3210[illegible]
13							
14							
15							
16							
17							
18							
19							
20			25200		18126		
21			6048	6228			[illegible]
22							
23							
24			3024	3114			
25							
			34272	9342	18126		1400
27			14112	14532			[illegible]
28			[illegible]	30102			[illegible]
29	5401			23355			[illegible]
30	1473			25431			[illegible]
31	5401			31507			[illegible]
41	[illegible]			22836			[illegible]
2				31140		[illegible]	
	18167		17136	174903		5520	[illegible]
	[illegible]774		51408	184245	71243	10120	

SA 068489

Bleached Pulps #11 March 1978

Broke	Calc Carb	Dix Glos	Starch	Tita	Mapico Yellow	Alphasize	Alum
[illegible]	[illegible]						
500	18000						
[illegible]	18700						
14800	19200						
800	19200						
1800	19200						
3300	14400						
32100	130700						
800	6600						
[illegible]	1800						
	900						
1400	9300						
1500	3900			500			
800	12800			[illegible]			
[illegible]	16400						
1200	6300		500				
1800	14300		250	1000			
900	14400			1000	500		76
[illegible]					4050	432	[illegible]
1700	68000		750	2900	4550	432	677
[illegible]	208000		750	2900	4550	432	697

SA 068490

March 1978

Date	Ansilex	Tita	Zealex
2 27	1000	2000	
28			
31			
2	1000	2000	
3	1000	2000	
4			
	3000	6000	
6	2000	4000	
7	2000	4000	
8	1000	2000	
9			
10			
11			
12			
	5000	10000	
13	1000	2000	
14	1000	2000	
15			
16	1000	2000	
17	[illegible]	2000	
18	4000	8000	
19	[illegible]	8000	
	12000	24000	
20	3000	6000	
21	[illegible]	2000	
22	1000	2000	
23	1000	2000	
24	1000	2000	
25			
	7000	14000	
27	1000	2000	
28			
29	1000	2000	
30	1000	2000	
31	4000	8000	
41	2000	4000	
2	1000	[illegible]	
	10000	20000	

Unbleached Pulps #11 March 1978

Date	Dryden Nw Dry	Miramichi	Bathurst	Dryden S.B	Sem Be A S W	alum	Brake
2 7	20856		18436			1437	
2	[illegible]56		18436			15[illegible]	
3 1	18960		16760			1417	
2	14220		12570			[illegible]	
3	16116		14[illegible]			1204	
4							
	91008		80448			6682	
6							
7							
8							
9							
10							
11							
12	2844		2514			98	
	2844		2514			98	16
13	13272		11732			458	
14	21804		19274			752	
15	11376	11638	20112			785	
16		21428	18436			719	
17		22402	19274			752	
18		23376	20112			785	
19		23863	11732	3283		687	
	46452	102757	120672	3283		4938	574[illegible]
20							
21	9480	[illegible]331		5157		360	
22	9480	19480		9380		654	
23	9954	20454		9849		687	
24	14220	16558		1876		556	
25							
	43134	62823		26264		2257	27[illegible]
27							
28							
29							
30							
31							
4 1							
2							
	183438	165580	203634	29547		13975	

SA 068492

March #10 1978

down +
up −

Date	Brake Used	Pulps	Storage Tank Ins	Slab Waste	Stub Rolls	Dry Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	% Ret
2 27	6000	40874	6400	3700	750	9830	26920	—	46874	41200	[illegible]
28	3000	23794	—	1930	—	6500	16230	+ 6400	33194	24660	74.3
3 1	5400	60433	6400	13850	700	5350	11360	− (6400)	59433	31260	52.6
2	6500	42510	4800	400	—	12860	34760	+ 1600	50610	48020	[illegible]
3	5500	41300	9600	400	—	15480	35580	− (1800)	42000	51460	[illegible]
4	Down										
	26400	208911		20280	1450	50020	124850	− (3200)	232111	196600	84.7
6	6500	48140	4800	[illegible]	—	8370	26030	+ 4800	59440	47400	79.7
7	4600	46297	4800	11500	1800	6580	20590	—	50897	40470	79.5
8	5500	41900	6400	1050	—	22150	26490	− (1600)	45800	49690	108.5
9	7500	39200	6400	3050	2700	3690	34630	—	46700	44070	94.4
10	5000	28000	8000	4300	1270	3160	15740	− (1600)	31400	24470	77.9
11	6000	33600	8000	4300	2550	10750	21730	—	39600	39330	99.3
12	4500	25200	8000	2650	2250	1810	25470	—	29700	32180	[illegible]
	39600	262337		29850	10570	56510	180680	+ 1600	303537	277610	91.5
13	5000	30800	4800	1300	2800	5630	29890	+ 3200	39000	39620	[illegible]
14	5700	46975	6400	12050	350	16740	10360	− (1600)	51075	39500	77.3
15	4200	51973	4800	7350	—	14210	30740	+ 1600	57773	52300	[illegible]
16	4700	36618	4800	6300	—	5520	27550	—	41318	39370	[illegible]
17	7500	50850	6400	500	—	5480	42560	− (1600)	56750	48540	[illegible]
18	6500	44670	6400	1650	—	6700	40020	—	51170	48370	[illegible]
19	6000	41080	6400	3920	—	4430	37270	—	47080	45620	96.9
	39600	302766		33070	3150	58710	218390	+ 1600	344166	313320	91.0
20	5500	37115	4800	2650	1390	11080	23220	+ 1600	44215	38340	[illegible]
21	5000	37515	4800	6500	—	4050	33060	—	42515	43610	[illegible]
22	7000	45770	4800	150	—	2410	48030	—	52770	50590	[illegible]
23	7500	47325	8000	2350	—	—	46300	− (3200)	51625	48650	[illegible]
24	6000	41435	8000	2700	—	2400	42020	—	47435	47120	[illegible]
25	[illegible]										
	31000	209160		14350	1390	19940	192630	− (1600)	238560	228310	95.7
27	7000	46725	6400	2500	—	3720	34550	+ 1600	55325	40770	[illegible]
28	6500	47355	6400	500	—	[illegible]	48120	—	53855	49860	[illegible]
29	7000	46690	4800	750	—	5920	46320	+ 1600	55290	52990	[illegible]
30	6100	49524	6400	4850	—	—	42660	− (1600)	54024	47510	[illegible]
31	6200	45340	4800	2400	—	11250	31920	+ 1600	53140	[illegible]	[illegible]
4 1	6500	42805	4800	700	—	2480	48250	—	49305	[illegible]	[illegible]
2	7000	[illegible]	4800	2350	—	—	[illegible]	—	53190	[illegible]	[illegible]
	46300	324629		14050	—	24610	299540	+ 3200	374429	338200	90.4
	[illegible]	[illegible]		111600	[illegible]	[illegible]	1016090	+ 1600	1492503	1354[illegible]	[illegible]

[redacted]

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March #11 1978

Pat	Date	Burke Hard	Pulp	Storage Tank Inv	Sled Waste	Stus Pack	Ray Bible	Good Proof	Storage Tank adj	Total Raw Mat	Brown Pad	Pct
377	[illegible]	8800	[illegible]	6200	7600	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
743	[illegible]	[illegible]	39792	6200	200	—	[illegible]	40360	—	[illegible]	[illegible]	[illegible]
526	31	8000	35720	6200	600	3890	4840	33650	—	43700	[illegible]	[illegible]
947	2	1600	26790	6200	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	3	6400	[illegible]	[illegible]	1700	[illegible]	[illegible]	[illegible]	+ 1250	[illegible]	[illegible]	[illegible]
	4	[illegible]										
847		38000	171456		12400	11750	17320	154925	+ 1250	210706	179300	94.1
877	5	5700	[illegible]	[illegible]	2700	445	—	[illegible]	—	[illegible]	[illegible]	[illegible]
792	7	4500	46530	4950	1400	—		[illegible]	+	[illegible]	[illegible]	[illegible]
085	8	4200	45600	6200	3350	—	—	[illegible]	-(1250)	[illegible]	[illegible]	[illegible]
744	9	4000	49950	7450	600	—	—	44640	-(1250)	53500	[illegible]	[illegible]
779	10	4800	[illegible]	4950	1600	—	—	42600	+ 2500	[illegible]	[illegible]	[illegible]
993	11	4800	49952	4950	950	—	—	44370	—	[illegible]	[illegible]	[illegible]
084	12	4700	40822	4950	1700	—	—	38810	—	[illegible]	[illegible]	[illegible]
915		33700	341402		12300	440	—	287490	—	375100	[illegible]	80.0
1016	13	5600	25004	6200	3850	—	4440	18740	-(1250)	[illegible]	7030	[illegible]
773	14	9200	[illegible]	4950	600	—	—	[illegible]	+ 1250	[illegible]	[illegible]	[illegible]
202	15	9600	43176	4950	600	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
953	16	8800	37864	4950	1700	—	—	40320	—	[illegible]	[illegible]	[illegible]
855	17	8600	41676	4950	[illegible]	4010	1020	38690	—	[illegible]	[illegible]	[illegible]
945	18	9600	43488	4950	400	2530	1080	37950	—	[illegible]	[illegible]	[illegible]
969	19	8000	38878	4950	600	4050	1060	36710	—	46878	[illegible]	[illegible]
910		59400	273164		8050	10620	7600	258870	—	332564	285164	85
867	20	6800	[illegible]	8700	1100	300	—	31540	-(3750)	[illegible]	[illegible]	[illegible]
036	21	5400	35044	6200	2170	1970	8160	32790	+ 2500	[illegible]	[illegible]	[illegible]
959	22	8000	38340	6200	100	4140	—	36450	—	46340	[illegible]	[illegible]
942	23	8400	40257	6200	1050	—	—	40510	—	48657	41560	85.4
993	24	6400	39692	6200	1600	—	—	38820	—	[illegible]	[illegible]	[illegible]
	25	[illegible]										
957		35000	203261		6020	6410	3160	180340	-(1250)	237011	195730	82.7
737	27	4500	30944	6200	3600	—	5200	21970	—	[illegible]	[illegible]	[illegible]
926	28	4800	46326	6200	1550	—	—	39710	—	51126	41360	[illegible]
258	29	4200	45156	7450	2100	—	1960	33790	-(1250)	[illegible]	[illegible]	[illegible]
879	30	4200	33704	7450	3770	—	—	28390	—	[illegible]	[illegible]	[illegible]
852	31	4800	48458	4950	800	—	—	37710	+ 2500	[illegible]	[illegible]	[illegible]
043	41	3900	44625	4950	800	—	2400	37620	—	[illegible]	[illegible]	[illegible]
741	2	13300	41142	4950	4200	—	—	36180	—	54142	40384	[illegible]
704		39700	292358		16820	—	9560	235560	+1250	333308	261940	78.6
907		205800	1281641		55390	29220	39620	1117130	+ 1250	1488611	1241560	83.4

Trials April 1978. #10

Date										
4 3										
4										
5										
6										
7										
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10										
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13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
24										
25										
[illegible]										
27										
28										
29										

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Trials

April 1978
#11

Date	AHW		Domtar	Spec F Dix Glos	Brake
43					
4					
5					
6					
7					
10					
13	1964		6084	4800	[illegible]
14					
15					
16					
	1964		6084	4800	600
17					
18					
19					
20					
21					
22					
24					
25					
26					
27					
28					
29					
	1964		6084	4800	600

SA 068496

Bleached Pulps #10 April 1978

Date		a H W Bl	a S W Bl		507 Domtar	481 Celgar	500 P Aerent				Broke
4	3				[illegible]						[illegible]
	4				38025						[illegible]
	5				30420						[illegible]
	6				30420						[illegible]
	7 8				35470						[illegible]
					167310						32500
	10				[illegible]						[illegible]
	11				40560						[illegible]
	12				30420						4800
	13				5070	9620	15000				4800
	14					14430	[illegible]				6000
	15					14430	22500				6000
	16					15392	24000				6400
					103935	53872	84000				40300
	17					12506	19500				[illegible]
	18					11544	18000				[illegible]
	19					11544	18000				[illegible]
	20					13462	[illegible]				5600
	21					12506	19500				[illegible]
	22					12506	19500				[illegible]
						74074	115500				30800
	24					12506	19500				[illegible]
	25					12506	19500				
	26					12506	19500				[illegible]
	27					13462	[illegible]				[illegible]
	28					9620	15000				[illegible]
	29					10582	16500				[illegible]
						71188	111000				28800
					71345	171184	310500				

SA 068497

Broke	Napthol Lake 87# per gal	Alphanap	84 per gal	Calc Cyanide	Cadmium	Magnesium yellow	Sodium Benz	Ita	Amalie	Sizy	Clay	Bentonite	Peters	Aquapil	Calc Carb	alum	ultra Carb	#10 Starch
500		520						[illegible]	1500		3500					[illegible]		
500		600						1934	468		3750					1063		
000		450						2600	1300		3000					850		
000		480						1500	1050		3000					[illegible]		
500		560						3[illegible]	57[illegible]		3[illegible]					[illegible]		
500		2640						5[illegible]	267		35[illegible]					[illegible]		
00		440						16[illegible]	8465		16[illegible]					46[illegible]		4[illegible]
00				6400			130	3460	1700								[illegible]	
1800				480[illegible]			12[illegible]	2800	1400								3600	
900				480[illegible]			[illegible]	[illegible]	1400								3[illegible]	[illegible]
000				6000			150	3500	750								45[illegible]	16[illegible]
000				6000			102	3500	1750								[illegible]	1[illegible]
400				6400			96	3733	1867								45[illegible]	[illegible]
3300		440		34400			718	23400	11700		2750					779	25800	11700
00				5200			78	3766	1884								37[illegible]	
1800				4800			72	3367	1683								36[illegible]	[illegible]
900				4800			72	3200	1600								36[illegible]	
600				6050			84	3733	1867								37[illegible]	16[illegible]
200				5850			78	3467	1[illegible]								[illegible]	
200				5850			78	3467	1733								[illegible]	
800				32550			462	21000	10500								21350	57[illegible]
1800				5850			78	3467	1733								3[illegible]	[illegible]
600		520						3067	1533		3250					721		[illegible]
1800		520						3033	1517		3250					921		
600		560						4200	1[illegible]0		3500					99[illegible]		[illegible]
1000		400						3000	1500		2500					70[illegible]		
1000		440						3300	1650		2750					780		
2800		2440		5850			78	20067	10033		15250					4323	3250	[illegible]
400		5520		728[illegible]			1258	137746	6198		34500					9778	50400	[illegible]

5A 868498

Date	491 A H W Bl	A S W Bl	507 Domtar	460 A S W Tran	451 Brunswick	500 Prince Albert	Broke
43			24332	3680	3608		[illegible]
4			24336		7216		[illegible]
5			22815		6765		[illegible]
6			24336		7216		[illegible]
7			[illegible]		[illegible]		[illegible]
8							
			118638	3680	31570		[illegible]
10							
11							
12	8838					27000	[illegible]
13	5928		12168				[illegible]
14	6874		[illegible]				[illegible]
15	5401		16731				[illegible]
16			19773		5863		[illegible]
	25041		69966		5863	27000	20900
17			25857		7667		[illegible]
18			27378		8118		[illegible]
19			[illegible]		6765		[illegible]
20			25857		7667		[illegible]
21			[illegible]		[illegible]		
22							
			109512		37472		[illegible]
24							
25	[illegible]		[illegible]				
26	[illegible]		[illegible]		1804		
27			[illegible]		7667		
28			25857		7667		
29			19773		5863		[illegible]
	6874		98865		23001		[illegible]
			96781	[illegible]	[illegible]	27000	

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Bleached Pulps #11 April 1978

...ke		Calc Carb	Dix Glos	Starch	Tita	Mapico Yellow	Alphasize	Alum
[illegible]						[illegible]	[illegible]	[illegible]
...0						[illegible]	384	[illegible]
...00						3000	360	[illegible]
[illegible]						[illegible]	[illegible]	[illegible]
...0						[illegible]	[illegible]	[illegible]
[illegible]						[illegible]	[illegible]	[illegible]
...0		25200						
[illegible]		[illegible]600						
...0		16500						
...0		13[illegible]00						
...0						3400	312	425
...00		64500				3400	312	425
...0						4200	40[illegible]	556
...0						4500	432	589
...0						3000	360	471
...0						3400	40[illegible]	556
[illegible]						10[illegible]	[illegible]	58[illegible]
...00						16150	1728	2781
		2800						
...0		15000				1000	96	131
[illegible]						3[illegible]	4[illegible]	[illegible]
...0						3400	40[illegible]	556
...0						2600	312	425
...00		17800				10400	1224	1668
...20		82600				4555[illegible]	5136	7424

SA 068500

April 1978

Date	Ansilex	Tita	Zeolex
4 3	1000	2000	
4	2000	4000	
5	1000	2000	
6	1000	2000	
7 8	[illegible]	5000	
	9000	18000	
10	3000	5940	
11	1000	1980	
12	[illegible]	3960	
13	1000	[illegible]	
14	[illegible]	[illegible]	
15	1000	1980	
16	1000	1980	
	10000	19800	
17	1000	1980	
18	4000	[illegible]	
19	[illegible]	1980	
20	[illegible]	1980	
21	[illegible]	[illegible]	
22	[illegible]	[illegible]	
	9500	18810	
24	[illegible]	3960	
25	[illegible]	1980	
26	[illegible]	[illegible]	
27	[illegible]	[illegible]	
28	[illegible]	3960	
29			
	8000	15840	
	[illegible]	[illegible]	

SA 068501

Unbleached #11 Pulps April 1978

Date	Dryden Nu Dry	Miramichi	Bathurst	Dryden Semi Bl	Alum	Bu[illegible]
43						
4						
5						
6						
7	2872	1461	[illegible]		[illegible]	
8						
	[illegible]	1461	1257		[illegible]	[illegible]
10	17[illegible]	[illegible]	[illegible]			
11	15424	7792	6704		[illegible]	
12						
13						
14						
15						
	32776	16558	14246		111[illegible]	15[illegible]
17						
18						
19						
20						
21	6266	12[illegible]	5[illegible]		[illegible]	
22	9158	18506	7961		621	
	15424	31168	13408		1046	1[illegible]
24	9158	18506	7961		621	
25	6266	12662	5447		[illegible]	[illegible]
26						
27						
28						
29						
	15424	31168	13408		1046	12[illegible]
	66516	80355	42319		3302	[illegible]

SA 068502

April 1978
#10

Date	Brake Used	Pulps	Storage Tank Inv (4800)	Slab Waste	Stub Rails	Rep Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	% Ret.
43	6500	40625	6400	750	—	5000	42580	-(1600	45525	48350	[illegible]
4	7500	50875	6400	800	—	9320	38970	—	58375	49040	[illegible]
5	6000	37650	6400	1600	—	—	46130	—	43650	47730	[illegible]
6	6000	40245	4800	2480	—	6140	39760	+1600	47845	48380	[illegible]
7	6500	47250	6400	[illegible]	—	—	[illegible]	-(1600)	[illegible]	[illegible]	
8	[illegible]										
	32500	216645		5830	—	20460	219720	-(1600)	247545	246010	994
10	5500	39975	6400	1500	—	[illegible]	37670	—	45475	42730	[illegible]
11	6800	58790	4800	950	4100	4050	42090	+1600	67190	51190	[illegible]
12	4800	44340	6400	3150	4000	—	37860	-(1600)	47540	45010	[illegible]
13	4800	43410	8000	4140	2350	6000	22980	-(1600)	46610	35470	[illegible]
14	6000	54430	6400	1050	4760	—	45870	+1600	62030	51650	[illegible]
15	6000	53782	6400	800	4670	2590	42360	—	59782	50420	[illegible]
16	6400	58188	6400	300	4790	—	47020	—	64588	52110	807
	40300	352915		11890	24670	16380	275870	—	313215	328810	836
17	5200	46834	6400	1150	4490	1300	42960	—	52034	49900	[illegible]
18	4800	44166	4800	1350	4650	1300	44630	+1600	50566	51930	[illegible]
19	4800	44416	6400	1950	3900	3950	37810	-(1600)	47616	47620	[illegible]
20	5600	51552	6400	1700	3840	7900	30240	—	57152	43680	[illegible]
21	5200	47984	8000	1900	4330	1320	40440	-(1600)	51584	47990	[illegible]
22	5200	46384	8000	750	4650	—	46230	—	51584	51630	[illegible]
	30800	281336		8800	25870	15770	242310	-(1600)	310536	292750	94[illegible]
24	4800	48584	6400	3000	3950	[illegible]	37840	+1600	[illegible]	47610	[illegible]
25	5600	[illegible]	4800	9600	450	3840	34010	+1600	47376	47900	[illegible]
26	4800	40336	6400	[illegible]	840	3970	43500	-(1600)	[illegible]	50410	[illegible]
27	5600	[illegible]	6400	[illegible]	—	1290	[illegible]	—	[illegible]	[illegible]	[illegible]
28	4000	36620	6400	1600	—	[illegible]	33440	—	36620	36460	[illegible]
29	4000	[illegible]	6400	100	—	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
	28800	245956		18550	5[illegible]40	14660	240110	+1600	276356	278560	1008
	[illegible]	1[illegible]96852		45070	55[illegible]	[illegible]70	978010	-(1600)	[illegible]	1146[illegible]	

SA 068503

April 1978
11

Cat	Date	Grade Used	Purgeable	Storage Tank	Glass Waste	Stock Rock	Rej Prod	Good Prod	Storage Tank	Total dry Raw Mat	Total Shrew Prod	% Rat
[illegible]	43	[illegible]	[illegible]	[illegible]	[illegible]	—		[illegible]		[illegible]		
[illegible]	4	[illegible]	35156	[illegible]	[illegible]	—		31540		[illegible]		
[illegible]	5	10500	32940	6200	300	—		[illegible]	—	43440		
[illegible]	6	11250	[illegible]	[illegible]	[illegible]	—		[illegible]	—	[illegible]		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				[illegible]				
[illegible]		55100	171[illegible]		175	—	—	[illegible]	12[illegible] (125)	[illegible]		
[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]		
[illegible]	11	8100	[illegible]	[illegible]	1000	5250	[illegible]	33840	—			
[illegible]	12	5400	61[illegible]	[illegible]	[illegible]	—	—	30500	−(125)	65[illegible]	[illegible]	[illegible]
[illegible]	13	[illegible]	[illegible]	7450	7420	—	—	30500	—	41[illegible]	[illegible]	[illegible]
[illegible]	14	4200	44965	4950	[illegible]	—	—	39[illegible]	+2500	51[illegible]	[illegible]	[illegible]
[illegible]	15	3000	35[illegible]	4950	6190	—	—	310[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	16	5600	[illegible]	4950	19[illegible]	—	3850	17[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]		37200	272210		23310	8580	10150	[illegible]	+1[illegible]	311[illegible]	[illegible]	798
[illegible]	17	6800	38192	6200	—	—	18[illegible]	43740	−(125)	43[illegible]	[illegible]	[illegible]
[illegible]	18	7200	40428	7450	300	—	3470	35[illegible]	−(125)	46578	[illegible]	[illegible]
[illegible]	19	6000	3[illegible]9	6200	4000	—	—	28140	+1250	40194	[illegible]	[illegible]
[illegible]	20	7200	37322	7450	200	—	18[illegible]	41[illegible]	−(1250)	43282	[illegible]	[illegible]
[illegible]	21	7200	35355	7150	3100	2[illegible]	—	3[illegible]	—	4[illegible]	[illegible]	[illegible]
[illegible]	22	7200	35[illegible]	7450	300	5350	—	37600	—	40[illegible]	[illegible]	[illegible]
[illegible]		41600	219862		7900	7850	7180	219280	−(250)	258962	[illegible]	[illegible]
[illegible]	24	8000	35[illegible]	6200	600	4720	—	34390	+1[illegible]	44[illegible]	[illegible]	[illegible]
[illegible]	25	5700	31197	6200	750	4220	—	31870	—	36[illegible]	[illegible]	[illegible]
[illegible]	26	5300	48128	6200	2850	—	2500	25[illegible]	—	5[illegible]	[illegible]	
[illegible]	27	6800	[illegible]	4950	—	—	8[illegible]	33[illegible]	+1[illegible]	[illegible]		
[illegible]	28	6800	37[illegible]	4750	100	—	3640	37020	—	4[illegible]	[illegible]	
[illegible]	29	4800	25548	4950	1650	—	5[illegible]	27870	—	33348	[illegible]	
[illegible]		37400	218164		5950	8940	196[illegible]	190020	+2500	258064	[illegible]	870
[illegible]		171300	88784		39110	25370	37020	815780	—	1059106	[illegible]	[illegible]

868584

Trials

May 1978
#110

Date											
51											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											

Date
51

SA 068505

Treals May 1978 #11

Date	AHW Bl	P George Celgar		Calc Carb		alum	Starch R 1%	13
51								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18	1764	13132	5844	[illegible]		5[illegible]		
19	1473		4383	1[illegible]	11-0726			
20								
21								
	3437	13132	10227	17[illegible]		57[illegible]		7
22								
23								
24								
25								
26								
27								
	3437	13132	10227	17[illegible]		57[illegible]		

SA 068506

Bleached Pulps #10 May 1978

Date	a HW Bl	a SW Bl		509 P Albert	487 Celgar	477 E B Dryden	469 Prince George			Broke
51	Strike									
2	"									
3	"									
4	"									
5				15[illegible]70	9740					[illegible]
6				6105	13636	14310				[illegible]
7					14610	21465				[illegible]
				21378	37986	35775				[illegible]
8					[illegible]	22896				[illegible]
9					14610	21465				
10					[illegible]	[illegible]				[illegible]
11					13636	[illegible]				
12					10714	1574[illegible]				[illegible]
13					[illegible]	[illegible]				[illegible]
14					12662	186[illegible]				[illegible]
					93504	137376				[illegible]
15					13636	20034				[illegible]
16					13636	[illegible]				[illegible]
17					12662	[illegible]				[illegible]
18					[illegible]	17172	1407			[illegible]
19					14610		21105			[illegible]
20					14610		21105			[illegible]
21					13636		19698			[illegible]
					[illegible]	75813	3315			[illegible]
[illegible]					[illegible]		19[illegible]			
23				19[illegible]	7792		[illegible]035			[illegible]
24					11688					[illegible]
25				16[illegible]	107[illegible]					[illegible]
26				11198	16071					[illegible]
27										
				68715	59901		26733			[illegible]
				[illegible]	[illegible]843	[illegible]	[illegible]48			

SA 068507

Recipe 88
Size
87 per gal
gal

Grade	Alphazyme	Calo Carb	Cabolite	Maxite yellow	Sodium Bicarb	Lita	Analite	Sizy	Clay	Alum	Ultra Cate
[illegible]	[illegible]					[illegible]	1500		[illegible]	[illegible]	
[illegible]	[illegible]					[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]	[illegible]					[illegible]	[illegible]		[illegible]	[illegible]	
6000	1560					1446	4734		10550	3763	
[illegible]	640					2633	1316		5100	1132	
[illegible]	[illegible]					[illegible]	1750		[illegible]	[illegible]	
6100	[illegible]					[illegible]	1634		[illegible]	[illegible]	
7000	[illegible]					[illegible]	1637		[illegible]	[illegible]	
7500	440					[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]	[illegible]									[illegible]	
[illegible]	520					[illegible]	[illegible]		[illegible]	[illegible]	
13700	3840					23433	11715		25300	6746	
7600	560					1933	967		4900	[illegible]	
7600	560					[illegible]	1167		4900	[illegible]	
7200	520					4750	[illegible]		[illegible]	[illegible]	
7200	520					3900	1950		[illegible]	[illegible]	
7400	600					2600	1300		5050	707	
7500	80					3567	1783	305	5450	654	
7000						3800	1900	350	3700	827	
3500	2840					22833	11417	675	30250	6018	
600						5867	2933	350	[illegible]	1145	
[illegible]						6067	3033	350	[illegible]	1516	
[illegible]		4800			120	[illegible]	1300	[illegible]	200	[illegible]	
[illegible]		4400			[illegible]	[illegible]	1100				
[illegible]		4400			110	2200	1100				3500
7400		13600			340	18934	9446	705	5800	2780	10200
	✓	✓			✓	✓	✓	✓	✓	✓	✓
[illegible]	8240	13[illegible]			340	7446	3723	140	7[illegible]	183[illegible]	

#10 Stan

SA 068508

Date	aHW Bl	aSW Bl	507 Domtar	453 Brunswick	509 P Albert	487 Calgar	Bl Dryden	469 P George	Broke
51	Strike								
2	"								
3	"								
4	"								
5			19773	5859					
6			24336	7248					[illegible]
7			25857	7701					
			69966	20838					18800
8			25857	7701					[illegible]
9			18252	7701		7305			
10			[illegible]	[illegible]		[illegible]	9540		[illegible]
11				7248		7792	15264		[illegible]
12									
13									
14									
			47151	28539		21428	24804		24800
15									
16									
17									
18	[illegible]					11688			[illegible]
19				6342		20454			[illegible]
20				8154		26278			[illegible]
21				9060		29220			[illegible]
	[illegible]			[illegible]556		87660			[illegible]
22				[illegible]		[illegible]			
23				7701	8144	8766		7973	
24				8154	[illegible]				
25				1812	[illegible]				
26									
27									
				26274	41738	36575		7973	
	x	✓	x/	/x	✓	✓	x/	x/	
			117[illegible]	[illegible]	41738	[illegible]	[illegible]4804	7973	

Bleached Pulps #11 May 1978

Broke	Calc Carb	Dist Glos	Mapico Yellow	Size	Alphasize	alum
600			[illegible]		[illegible]	
[illegible]			[illegible]		[illegible]	[illegible]
[illegible]			[illegible]		[illegible]	[illegible]
18800			9350		110[illegible]	15[illegible]
800			3400		40[illegible]	35[illegible]
[illegible]800			[illegible]		4[illegible]	[illegible]
[illegible]200			2600		31[illegible]	4[illegible]
[illegible]000			[illegible]		[illegible]	[illegible]
[illegible]4800			12600		151[illegible]	1860
[illegible]700	7600					
[illegible]600			3000		33[illegible]	[illegible]
7200			3600	210	9[illegible]	[illegible]
8000			4000	300		[illegible]
[illegible]4500	9600		10600	510	43[illegible]	[illegible]
[illegible]600			[illegible]	[illegible]		[illegible]
[illegible]			3400	[illegible]		556
[illegible]200			3600	[illegible]		[illegible]
[illegible]200			[illegible]	[illegible]		[illegible]
[illegible]			11600	870		1877
[illegible]	7600		44150	1[illegible]	3[illegible]45	[illegible]

SA 068510

May 1978

Date	Anselex	Tita	Zeolex
51	Sterke		
2	"		
3	"		
4	"		
5	3000	[illegible]	
6	3000	[illegible] 4700 Reg	
7	1000	2000	
	7000	14070	
8	1000	2000	
9	2000	4000	
10	2000	4000	
11	1000	[illegible]	
12	2000	4000	
13	20[illegible]	[illegible]	
14	[illegible]	[illegible]	
	12000	24000	
15	2000	[illegible]	
16	2000	[illegible]	
17	1000	2000	
18	2000	4000	
19	1000	[illegible]	
20			
21	[illegible]	[illegible]	
	10000	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	4000	[illegible]	
24	1000	[illegible]	
25	[illegible]	[illegible]	
26			
27			
	11000	22000	
	[illegible]	[illegible]	
	40[illegible]	[illegible]	

Dat
5

SA 068511

Unbleached Pulps #11 May 1978

Date	Dryden New Dry	Miramichi	Bathurst	A.S.W. Semi B	alum	Brake
51	Strike					
2	"					
3	"					
4	"					
5						
6						
7						
8						
9						
10						
11						
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
13	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
14	19280		8380	7000	65[illegible]	[illegible]
	57768	3687	25978	24750	[illegible]	18700
15	15424		6704	7200	[illegible]	6800
16	19280		8380	7000	981	7300
17	14460		6285	6750	471	5[illegible]
18						
19						
20						
21						
	49164		21369	22150	1995	19700
22						
23						
24						
25	10604	1054	[illegible]	[illegible]	425	8000
26		9486	15084	8100	589	6800
27						
	10604	10540	21369	13950	1014	14800
	+	+	+	+	+	
	119[illegible]	14[illegible]	68716	61650	5037	[illegible]

SA 068512

May 1978 #10

Date	Broke Used Stroke	Pieces	Storage Tank Ovs (6400)	Slab Waste	Slab Cube	Rej Fled	Good Prod	Storage Tank Adj	Total Raw Mat	Gross Prod	% Rej
51											
2	"										
3	"										
4	"										
5	4400	36410	4800	1500	—	5560	24350	+ 1600	[illegible]	31710	[illegible]
6	5600	45014	4800	[illegible]	—	8550	40570	—	[illegible]	[illegible]	[illegible]
7	6000	44975	4800	700	—	1130	51440	—	[illegible]	[illegible]	[illegible]
	16000	126349		5000	—	15840	116380	+ 1600	143919	137220	[illegible]
8	6400	48169	4800	500	+	2780	50400	+	[illegible]	53680	[illegible]
9	6000	47275	6400	150	2340	1440	52500	— (1600)	51675	56430	[illegible]
10	6100	43830	4800	[illegible]	1640	6780	39320	+ 1600	[illegible]	[illegible]	[illegible]
11	7000	43653	6400	1650	+	1440	39980	— (1600)	49030	43070	[illegible]
12	5500	33494	6400	4940	+	—	38820	+	38494	43770	[illegible]
13	6500	[illegible]	6400	[illegible]	+	—	44330	—	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	5450	+	2810	37940	—	[illegible]	46150	[illegible]
	43700	305168		17050	3960	15250	303290	— (1600)	347268	339550	978
15	5600	46030	6400	3000	2200	—	52000	—	[illegible]	[illegible]	[illegible]
16	5600	44450	[illegible]	1950	2160	—	46010	—	[illegible]	[illegible]	[illegible]
17	5200	[illegible]	4800	4800	580	4930	27180	+ 1600	48935	57480	[illegible]
18	5200	40861	4800	700	—	8590	35540	—	[illegible]	44830	973
19	7400	45365	6400	5050	1470	2160	40990	— (1600)	51065	51670	[illegible]
20	7500	[illegible]	6400	450	2310	1560	50670	—	57820	54990	[illegible]
21	7000	43084	6400	1250	1380	1350	46110	—	[illegible]	[illegible]	[illegible]
	45600	[illegible]		17200	10100	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
22	[illegible]	[illegible]	[illegible]	700	—	7160	37000	—	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	6400	1400	—	—	46560	—	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	5370	2550	1140	[illegible]	—	[illegible]	[illegible]	[illegible]
25	[illegible]	[illegible]	[illegible]	[illegible]	3125	[illegible]	[illegible]	+ [illegible]	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	[illegible]	3900	3425	1100	34890	— (3200)	[illegible]	43315	[illegible]
27	[illegible]										
	[illegible]	[illegible]		14600	9100	24450	173970	— (1600)	248214	[illegible]	[illegible]
	[illegible]	[illegible]		[illegible]	[illegible]	741[illegible]	8941[illegible]	— (1[illegible])	[illegible]	[illegible]	

Da
5

SA 068513

May 1978
#11

Pct	Date	Broke Used	Pulps	Storage Tank Ins	Slab Waste	Stub Rolls	Rep Prod	Good Prod	Storage Tank	Total Adj Raw Mat	[illegible]	[illegible]
	51	Strike										
	2	"										
	3	"										
	4	"										
[illegible]	5	5600	28724	7450	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6	[illegible]	35[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	7	6800	37366	[illegible]	150	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
953		18800	101258		3750	—	3700	70580	[illegible]	[illegible]	[illegible]	[illegible]
784	8	6800	37366	6200	300	—	—	40500	+ [illegible]	[illegible]	[illegible]	[illegible]
092	9	6800	37066	6200	500	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
965	10	5200	27714	4950	1600	—	[illegible]	[illegible]	+ [illegible]	[illegible]	[illegible]	[illegible]
878	11	6000	33888	[illegible]	200	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
123	12	[illegible]	39[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
734	13	[illegible]	35[illegible]	[illegible]	2700	4860	10870	[illegible]	—	[illegible]	[illegible]	[illegible]
897	14	6000	36660	[illegible]	850	4600	—	34[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
978		43700	250219		12550	12475	20960	220960	+ 1250	[illegible]	[illegible]	[illegible]
201	15	6800	29328	—	2250	3900	—	30050	+ 6200	[illegible]	[illegible]	[illegible]
002	16	7300	36660	6200	600	3775	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
768	17	5600	27495	4950	550	3390	—	[illegible]	+ [illegible]	[illegible]	[illegible]	[illegible]
973	18	3700	62[illegible]	4950	1800	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
1012	19	6600	37788	6200	3200	—	7420	26390	− (1250)	[illegible]	[illegible]	[illegible]
751	20	7200	38358	6200	100	—	7250	[illegible]	—	[illegible]	[illegible]	[illegible]
1000	21	8000	42580	6200	200	—	—	38140	—	[illegible]	[illegible]	[illegible]
985		45400	274465		8700	11065	14670	207[illegible]	—	31781[illegible]	[illegible]	[illegible]
833	22	7600	40451	6200	550	—	—	38[illegible]	—	[illegible]	[illegible]	[illegible]
845	23	6800	36239	4950	1970	—	—	34600	+ 1250	[illegible]	[illegible]	[illegible]
834	24	7200	39510	6200	2500	—	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
953	25	5600	32573	4950	1550	1600	[illegible]	[illegible]	+ [illegible]	[illegible]	[illegible]	[illegible]
1062	26	6800	32670	6200	550	4590	4110	32180	− [illegible]	[illegible]	[illegible]	[illegible]
	27	[illegible]										
895		34000	181443		7120	6190	[illegible]10	168310	—	[illegible]	[illegible]	[illegible]
[illegible]		141900	807385		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SA 068514

Trials

June 1978
#10

Date		Calgon	Albert	Tita	Ansilex	Clay	Size	alum	Broke
5	29								
	30								
	31								
6	1							10-0839	
	2	2868	1964	800	400	200	50	164	[illegible]
	3								
	4								
		2868	1964	800	400	200	50	164	[illegible]
	5								
	6								
	7								
	8								
	9								
	10								
	12								
	13								
	14								
	15								
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								
	26								
	27								
	28								
	29								
	30								
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

SA 068515

Treals

June 1978
#11

Broke	Date		Albert	George	Calc Cart	Sta Lok 130	Size	Yellow Magic	Alum	[illegible]
	5:[illegible]									
	[illegible]									
	[illegible]									
	6 1									
[illegible]	[illegible]									
	[illegible]									
	[illegible]									
[illegible]										
	5									
	6									
	7									
	8									
	9									
	12									
	13		11-0932							
	14		7856		1000	[illegible]				
	15									
	16		[illegible]							
	17									
	18									
			7856		1000	200				1[illegible]
	19									
	20									
	21									
	22									
	23									
	24									
	25									
	26									
	27			11-0936						
	28			1876			25	200		
	29									
	30									
				1876			25	200	65	[illegible]
			[illegible]	14 [illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

SA 068516

Bleached Pulps #10 June 1978

Date	535 A H W Bl	A S W Bl		491 P Albert	478 Calgar	507 Domtar	598 Grand Prairie	455 Bl Brunswick	469 P George	Broke
5 29										
30				11784	17208					[illegible]
31				[illegible]	18[illegible]					
6 1				[illegible]	[illegible]					
2				10[illegible]	15774					[illegible]
3				14730	[illegible]					
4				[illegible]	[illegible]					
				78560	114720					[illegible]
5				13748	2[illegible]76					[illegible]
6				11784	17208					[illegible]
7				7856	[illegible]72					[illegible]
8				13748	[illegible]76					[illegible]
9				13748	[illegible]76					
10										
				60884	88908					[illegible]4400
12				16694	14818					[illegible]
13				22095	14340					[illegible]
14				19149	13384	1521				[illegible]
15				22075	14340					
16				19149	[illegible]128					
17				16203	10516					
18				19149	12428					[illegible]
				134534	92[illegible]54	1521				[illegible]
19				22075	14340					[illegible]
20				19149	12428					[illegible]
21				[illegible]	14340					[illegible]
22				[illegible]	[illegible]					[illegible]
23				17676	[illegible]					[illegible]
24				[illegible]	[illegible]					[illegible]
25				[illegible]	13[illegible]4					[illegible]
				134043	86996					[illegible]
26					[illegible]	9126	1196	7100		
27					20[illegible]76			12740		
28					[illegible]			[illegible]		
29					14[illegible]34		[illegible]	[illegible]		
30							[illegible]	13650		
					62140	9126	38870	55510		[illegible]
	✓	✓		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	✓	

[illegible]

Broke	Nasphor Star 8.7# per Gal	8# per Gal Alfasize	Calo Carb	Cabosil	Magnesium Silicate	Sodium Bicarb	Ita	Amorphous	Size	Clay	Alum	Ultra Carb
[illegible]			2000			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]							[illegible]		[illegible]	[illegible]		
[illegible]							[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1400							[illegible]	[illegible]	[illegible]	1100	[illegible]	
[illegible]							[illegible]	[illegible]	372	[illegible]	[illegible]	
[illegible]							[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
32400			2000			50	3500	15150	1875	9300	4707	
5600							4833	2417	350	1400	1145	
4800							4001	1977	300	1400	[illegible]	
3200							2667	1333	200	1600	561	
5600							[illegible]	[illegible]	350	[illegible]	[illegible]	
[illegible]							4667	[illegible]	350	[illegible]	[illegible]	
24400							20833	10417	1550	10000	4656	
6400							2467	1233	273	4700	807	
7500							1867	933	293	6300	853	
1000							5134	2566	350	10000	[illegible]	
7500							5000	2500	375	3000	1063	
500							3917	1993	350	2600	[illegible]	
[illegible]							[illegible]	1623	275	[illegible]	[illegible]	
[illegible]							3467	1133	325	2600	[illegible]	
16900							25167	12581	2216	31400	6366	
7500							433	2166	[illegible]	3000	[illegible]	
500							390	1950	350	2600	[illegible]	
7500							5100	2550	375	3000	1063	
6000							4400	2200	300	[illegible]	850	
6000							4000	2000	300	2100	850	
5000							333	1666	[illegible]	[illegible]	700	
7000							46[illegible]	[illegible]	[illegible]	[illegible]		
15500							29735	14865	2275	18200	6418	
[illegible]							2000	1000	350	[illegible]	[illegible]	
7000									250	5750	763	
7500									300	7500	1100	
9500							[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5000							1000	500	350		[illegible]	
31600							3500	1750	1370	18950	3751	8400
[illegible]			2000			50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

#1 [illegible]

SA 068518

Date	a HW Bl	a SW Bl		455 Brunswick	507 Domtar	478 Celgar	491 P aiset	598 Grand Prairie	George		Brake
5 29											
30											
31											
6 1											
2											
3				5645	19266	9080					
4				8190	18[illegible]	8604					
				16835	37518	17684					15[illegible]
5				7735	17238	8120					
6				7735	17238	8106					6[illegible]
7				6825	15210	7170					
8				7735	17238	8106					[illegible]
9				6370	14700	7170	982				[illegible]
10											
				36400	81627	38718	982				25000
12	9095					8126	16694				[illegible]
13	6420					5736	11784				[illegible]
14						13384		16744			[illegible]
15						11472		14350			[illegible]
16											
17											
18											
	15515					38718	28478	31096			16[illegible]
19											
20											
21											
22							[illegible]				[illegible]
23							35[illegible]				
24							[illegible]				[illegible]
25							17640				
							12[illegible]96				[illegible]
26							21604		11[illegible]		
27									35[illegible]		[illegible]
28											
29				6[illegible]							
30				5915					1[illegible]		[illegible]
				1[illegible]85			21604		11[illegible]		[illegible]
	15[illegible]			[illegible]		[illegible]	[illegible]	[illegible]	[illegible]		

SA 068519

Bleached Pulps #11 June 1978

Broke	Calc Carb	Starch Sta Lok Bo	Mapico Yellow	Tita	Size	alum
[illegible]			[illegible]		[illegible]	[illegible]
[illegible]			[illegible]		[illegible]	
5200			7000		855	2354
6800			3400		255	1304
6800			3400		375	[illegible]
6000			3000		375	[illegible]
6800			3400		[illegible]	[illegible]
5600			2950		375	[illegible]
22000			16150		1805	5731
5400	23800			450		
3600	16800			600		
4500	3500	700				
3300	3600	600				
16800	47700	1300		1050		
[illegible]			4200		265	[illegible]
7200			3600		270	[illegible]
5600			3400		[illegible]	[illegible]
1000			[illegible]		[illegible]	[illegible]
24800			13200		1230	2975
[illegible]			[illegible]		[illegible]	
7200			3600		450	1177
[illegible]			3400		[illegible]	[illegible]
[illegible]			[illegible]		400	[illegible]
[illegible]			2600		[illegible]	[illegible]
[illegible]			16200		2025	5297
1100	47700	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SA 068520

June 1978

Date	Tank Ansilex	Tank Tita	Zeolex
5 29	[illegible]		
30	1000	[illegible]	
[illegible]	2000	4000	
6 1	1800	4000	
2	[illegible]	6000	
3	5000	6000	
4	[illegible]	6000	
	13800	28000	
5	1600	2950	
6	1200	2000	
7	2500	4500	
8 Z	1250		
8 A	750	[illegible]	
9	—	—	
10	—	—	
	7100	14500	
12	1250	[illegible]	
13			
14	[illegible]	4050	
15	3150	6000	
16			
17	[illegible]	4000	
18	[illegible]	[illegible]	
	[illegible]	18500	
[illegible]	2100	[illegible]	
[illegible]		[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	
	14100	[illegible]	
[illegible]	2500	5000	
27			
[illegible]			
[illegible]			
30			
	[illegible]	[illegible]	
	[illegible]	[illegible]	

SA 068521

Unbleached # Pulps June 1975

Date	Dryden New Dry	Miramichi	Bathurst	a SW Semi	Brunswick	Alum	a SW Unbl	Broke
30		10300	[illegible]	[illegible]		[illegible]		[illegible]
		[illegible]	[illegible]	[illegible]		[illegible]		
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
2	1060	[illegible]	[illegible]	[illegible]		[illegible]		[illegible]
3								
4								
	7050	38625	57780	31500	2275	2834		[illegible]
5								
6								
7								
8								
9								
10								
12								
13								
14								
15								
16	15980		9416	3150		[illegible]	[illegible]	[illegible]
17	17960		[illegible]	5400		[illegible]	[illegible]	[illegible]
18	16920		7704			[illegible]	[illegible]	[illegible]
	50760		25252	8550		1766	14550	[illegible]
19	16920		7704	4050		[illegible]	[illegible]	[illegible]
20	16920		7704			[illegible]	8730	[illegible]
21	15040		6848			[illegible]	[illegible]	[illegible]
22								
23								
24								
25								
	48880		22256	4050		1701	20855	[illegible]
26								
27								
28								
29								
30	[illegible]		[illegible]			[illegible]		[illegible]
	1410		3852			327		700
	8100	[illegible]	101140	4410	[illegible]	[illegible]	[illegible]	[illegible]

SA 068522

June 1978
#10

[illegible] up

Date	Broke Used	Pulps	8000 Storage Tank Inv	Slab Waste	Stub Rolls	Bag Prod	Good Prod	Storage Tank Adj	Total Raw Mat	Gross Prod	% Rt
5 29	[illegible]										
30	5200	40817	4800	4600	2350	3990	25650	+ 3200	[illegible]	36590	[illegible]
31	5200	43333	[illegible]	[illegible]	[illegible]	—	35180	—	[illegible]	[illegible]	[illegible]
6 1	4800	38992	[illegible]	3600	1600	—	34480	-(1600)	[illegible]	39680	[illegible]
2	5200	42733	6400	2650	1580	—	40670	—	[illegible]	44900	[illegible]
3	6000	48715	6400	6150	1620	4360	31280	—	[illegible]	[illegible]	[illegible]
4	6800	54147	6400	750	2070	—	47760	—	[illegible]	[illegible]	[illegible]
	33200	268737		25750	12420	8350	215020	+ 1600	303537	261540	862
5	5600	44324	6400	2800	1700	—	39000	—	49924	43500	[illegible]
6	4800	38692	6400	700	1820	—	41180	—	43492	43700	[illegible]
7	5200	28328	6400	4750	740	6850	11440	—	31528	23780	[illegible]
8	5600	43974	6400	600	—	—	49810	—	49574	50470	[illegible]
9	5200	43974	4800	500	600	1400	48750	+ 1600	50774	51250	[illegible]
10	[illegible]										
	24400	199292		9350	4860	8250	190240	+ 1600	225292	212700	944
12	6400	41385	6400	9050	800	—	39490	-(1600)	46185	49340	[illegible]
13	7500	48628	6400	4300	150	—	53030	—	56128	57480	[illegible]
14	7000	52104	6400	800	5910	—	47840	—	59104	54550	[illegible]
15	7500	47310	[illegible]	450	5760	4000	44730	—	[illegible]	54940	[illegible]
16	6500	42052	6400	6950	4320	990	34680	—	[illegible]	46940	[illegible]
17	5500	[illegible]	6400	2400	3825	4210	32970	—	[illegible]	43405	[illegible]
18	6500	41302	6400	600	2825	1420	47570	—	[illegible]	52415	[illegible]
	46900	306875		24550	23590	10620	300310	-(1600	352175	359070	1020
19	7500	46310	6400	650	2800	7280	41340	—	[illegible]	52070	[illegible]
20	6500	41352	6400	1350	[illegible]	[illegible]	42310	—	[illegible]	48940	[illegible]
21	7500	[illegible]	[illegible]	450	[illegible]	—	48590	—	[illegible]	51260	[illegible]
22	6000	46448	6400	3950	2650	2940	[illegible]	—	[illegible]	[illegible]	[illegible]
23	6000	37844	6400	100	2800	—	[illegible]	—	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
25	7000	45756	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
	45500	292914		15130	18690	17090	283630	—	[illegible]	334530	[illegible]
26	5000	[illegible]	[illegible]	710	[illegible]	[illegible]	[illegible]	+ 1600	[illegible]	[illegible]	[illegible]
27	7000	39546	6400	450	6300	11310	37660	-(1600)	[illegible]	[illegible]	[illegible]
28	7500	42960	6400	—	[illegible]	5530	42100	—	[illegible]	[illegible]	[illegible]
29	3500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
30	5600	[illegible]	[illegible]	550	7775	22910	20400	—	[illegible]	[illegible]	[illegible]
	31600	201616		8750	[illegible]	[illegible]	[illegible]	—	233216	225760	[illegible]
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

SA 068523

June #11 1978

Date	Broke Used	Pulps	Storage Tank Inv.	Slab Waste	Stub Rails	Rep Prod	Good Prod	Storage Tank Adj	Total Raw Mat	[illegible]
30	5400	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	33370	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]								
1	7500	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
2	7500	[illegible]	6200	2150	[illegible]	[illegible]	[illegible]			
3	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]		[illegible]	
4	[illegible]	[illegible]	6200	[illegible]	—	[illegible]	[illegible]	—	[illegible]	
	50600	219[illegible]		4650	17[illegible]	8250	201740	—	[illegible]	
5	6800	36754	7450	—	—	—	36270	−(250)	[illegible]	
6	[illegible]	[illegible]	6200	[illegible]	—	—	36840	+ 1250	[illegible]	
7	6000	[illegible]	6200	[illegible]	—	5830	24550	—	[illegible]	
8	6800	[illegible]	6200	100	—	[illegible]	[illegible]	—	[illegible]	
9	[illegible]	[illegible]	6200	100	—	—	[illegible]	—	[illegible]	
10	[illegible]									
	[illegible]	175682		[illegible]	—	[illegible]	161440	—	[illegible]	
12	5400	58165	7450	4370	—	—	24820	−(1250)	[illegible]	
13	3600	41340	6200	700	—	—	41390	+ 1250	46190	
14	5700	43384	6200	[illegible]	—	5730	21440	—	[illegible]	
15	3300	30024	+	3650	—	1480	25300	+ 6200	[illegible]	
16	7300	30971	6200	5000	[illegible]	3800	[illegible]	−(6200)	[illegible]	
17	8700	[illegible]	6200	1400	3210	3180	[illegible]	—	43687	
18	7700	33354	6200	1050	3300	1080	34110	—	[illegible]	
	41900	272025		24670	8910	15320	196660	—	[illegible]	[illegible]
19	7200	33039	6200	1000	3120	3130	30100	—	[illegible]	
20	7200	33354	4950	2100	3140	4200	27440	+ 1250	[illegible]	
21	[illegible]	[illegible]	+	600	[illegible]	1040	32375	+ [illegible]	[illegible]	
22	[illegible]	[illegible]	7450	1300	—	3520	[illegible]	−(7450)	[illegible]	
23	7200	[illegible]	6200	—	—	—	39030	+ 1250	47672	
24	[illegible]	[illegible]	6200	400	—	1930	[illegible]	—	[illegible]	
25	[illegible]	[illegible]	[illegible]	550	—	2060	[illegible]	—	[illegible]	
	45200	236167		5750	9460	15880	214095	—	[illegible]	[illegible]
26	[illegible]	36685	4950	[illegible]	—	[illegible]	[illegible]	+	[illegible]	
27	7200	37818	4950	100	—	—	42260	—	45015	
28	7500	37518	6200	1200	—	3820	37850	−(1250)	44065	
29	[illegible]	[illegible]	6200	7200	—	3060	33220	—	[illegible]	
30	5700	32393	8700	200	—	1910	33330	−(2500)	[illegible]	
	33600	178134		12200	—	10800	184550	−(250)	209234	[illegible]
	203300	[illegible]		51740	[illegible]	67470	[illegible]	−(250)	[illegible]	

SA 068524

Bleached Pulps #10 July 1910

			598	478	512	477	
[illegible]	a SW Bl	P Albert	Grand Prairie	Brunswick	Bl Domtar	Calgar	Broke
			23322	12428			6500
			23322	12428			6500
			7176	6692	10752	8586	6500
					14336	20034	7000
					14336	20034	7000
			53820	31548	39421	48654	33500
					15360	21465	7500
					13312	18603	6500
					13312	18603	6500
					15360	21465	7500
					5120	7155	2000
					62464	87291	30000
					14336	20034	6500
					15360	21465	7500
					[illegible]	[illegible]	6000
					13312	18603	6500
					13312	18603	6500
					14336	20034	7000
					15360	21465	7500
					98304	137376	47500
					[illegible]	[illegible]	6500
					[illegible]	[illegible]	[illegible]
					[illegible]	[illegible]	6100
					15360	21465	[illegible]
					16384	[illegible]	[illegible]
					74752	104463	[illegible]
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SA 068525

[redacted]

Brake	Asphalt Size 8.7# per gal	8# per gal	Calc Carb	Cabot	Mpic Nylon	Solid Board	Sta	Rivet Washer	Size	Dry	Alum	Felt Cat
500							267	433	260		[illegible]	[illegible]
500							1333	[illegible]	[illegible]		[illegible]	
500							3500	1600	[illegible]		[illegible]	[illegible]
[illegible]							[illegible]	[illegible]	[illegible]		[illegible]	
[illegible]							[illegible]	[illegible]	[illegible]			
5000							1421	7016	1510		[illegible]	1 17
500							400	2000	[illegible]		1063	
500							3467	[illegible]	[illegible]		[illegible]	[illegible]
500							3467	[illegible]	[illegible]		[illegible]	[illegible]
500							1600	2000	575		1063	[illegible]
[illegible]							1667	[illegible]	[illegible]		[illegible]	
20000							1661	879	1525		4300	1[illegible]
[illegible]							[illegible]	1700	[illegible]		[illegible]	[illegible]
[illegible]							3500	750	375		[illegible]	[illegible]
[illegible]							[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
500							4133	2167	325	1000	[illegible]	[illegible]
500							4133	2166	325	1300	[illegible]	
[illegible]							[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
500							5000	2500	[illegible]	1500	1063	
17500							2821	14016	2400	500	6803	8900
[illegible]							3733	1867	[illegible]	1300	[illegible]	
[illegible]							4133	[illegible]	400	[illegible]	[illegible]	
[illegible]							3700	1750	[illegible]	[illegible]	[illegible]	
[illegible]							[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]							1666	3124	460		1131	
[illegible]							[illegible]	11767	1825	5700	5173	
							[illegible]	[illegible]	[illegible]			

Date	535 a HW Bl	a SW Bl	461 Prince George	478 Brunswick	504 P. Albert					Brake
73										
4										
5			11136	3824						[illegible]
6										
7			27840							[illegible]
8			[illegible]							
9			[illegible]							
			98364	3824						17[illegible]
10			[illegible]	[illegible]						[illegible]
11	[illegible]		[illegible]							[illegible]
12										
13										
14										
15										
	5350		34800	5885						-900
17										
18										
19										
20										
21										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
[illegible]										
			74704	52466	[illegible]					[illegible]

[redacted]

Bleached Pulps #11 July 1978

Broke	Calc Carb	Sta Lok 130	Mopico Yellow	Tita	Size	alum
[illegible]			1600		[illegible]	[illegible]
4500	4500	750				
[illegible]	7100	[illegible]				
[illegible]	19500					
7600	31100	16	1600		[illegible]	[illegible]
[illegible]	18[illegible]00					
[illegible]700	12000					
[illegible]900	30200					
[illegible]800			1700		150	
[illegible]900			[illegible]		[illegible]	[illegible]
[illegible]200			[illegible]		[illegible]	[illegible]
[illegible]			[illegible]		[illegible]	[illegible]
1500			11550		1375	2379
[illegible]	[illegible]1300	16	[illegible]		[illegible]	[illegible]

July 1978

Date	Anselex	Tita	Zeolex
73			
4			
5			
6			
7			
8	4000	8000	
9	[illegible]	6750	
	7050	14750	
10	2000	[illegible]	
11	1000	2000	
12	[illegible]	[illegible]	
13	[illegible]	[illegible]	
14	[illegible]	[illegible]	
15			
	7050	14400	
17	[illegible]	[illegible]	
18	[illegible]	[illegible]	
19			
20	[illegible]	[illegible]	
21	[illegible]	[illegible]	
22	[illegible]	[illegible]	
23	[illegible]	[illegible]	
	12000	24000	
24	[illegible]	[illegible]	
25		[illegible]	
26	[illegible]	[illegible]	
27	[illegible]	[illegible]	
28	[illegible]	[illegible]	
29			
	11000	22000	

Dat
7

SA 068529

Unbleached Pulps #11 July, 1978

Date	Dryden New Dry	Miramichi	Bathurst	a SW Semi	Brunswick	a SW Unbl
7						
5	3100		10[illegible]			
6	475	156[illegible]	[illegible]			[illegible]
7						
	4275	15[illegible]	17[illegible]			
		[illegible]	[illegible]57			[illegible]
13	6150	10[illegible]	75[illegible]			[illegible]
14	16150	[illegible]	7157			5[illegible]
	32300	21413	21872			2279[illegible]
17	17100	7[illegible]	757[illegible]			
18	19000	10[illegible]	8420			
[illegible]	9025	15[illegible]	[illegible]			
20	6175	1359[illegible]	5473			
21	8550	18[illegible]	7578			
[illegible]	[illegible]		[illegible]			
[illegible]	6650	[illegible]				
	75050	111397	40837			
26						
	8550	23[illegible]			4780	
	8550	23[illegible]17			4780	
	1750	[illegible]	[illegible]			

July 1978

July 1978 #10

down +
up −

Date	Broke Used	Pulps	Storage Tank Inv (6400)	Slab Waste	Stub Reels	Ray Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	% Ret	Date
73												
4												
5	6500	44110	6400	5050	5700	2120	28410	—	50610	41280	[illegible]	
6	6500	[illegible]	[illegible]	—	7900	2150	40870	+	49260	50920	[illegible]	
7	6500	41696	4800	3500	5100	3110	30620	+ 1600	49796	42330	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	1900	[illegible]	[illegible]	[illegible]	—	52020	[illegible]	[illegible]	
9	[illegible]	[illegible]	4800	[illegible]	4550	1350	[illegible]	—	52420	[illegible]	[illegible]	
	33500	217006		12750	26550	11070	177610	+ 1600	254106	228000	89 7	
10	7500	47700	[illegible]	[illegible]	6300	3870	44730	—	54700	57310	[illegible]	
11	[illegible]	[illegible]	4900	[illegible]	[illegible]	1270	38440	—	47340	[illegible]		
12	6500	[illegible]	6100	2500	[illegible]	—	[illegible]	− 1600	44940	[illegible]	[illegible]	
13	[illegible]	[illegible]	[illegible]	3650	[illegible]	[illegible]	[illegible]	—	54700	[illegible]		
[illegible]	[illegible]	15700	[illegible]	—	—	4400	4400	− (1600)	16100	8800	54 [illegible]	
15												
	30000	190980		13960	21300	11830	166570	− (3200)	217780	213660	98 1	
[illegible]	6500	[illegible]	[illegible]	2100	[illegible]	2490	39660	+ 1600	51520	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	+ 1600	55850	[illegible]	[illegible]	
19	[illegible]	[illegible]	[illegible]	700	[illegible]	—	[illegible]	− [illegible]	40060	[illegible]		
20	6500	40340	[illegible]	[illegible]	800	1000	36360	+ 1600	48440	42980	[illegible]	
21	6500	[illegible]	6100	[illegible]	1000	7840	31050	—	48140	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1220	[illegible]	—	[illegible]	[illegible]	[illegible]	
	[illegible]	[illegible]		[illegible]	[illegible]	16350	268110	+ 1600	351230	[illegible]	[illegible]	
[illegible]	[illegible]					[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]					[illegible]	[illegible]	—	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]		
[illegible]	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	—	53700	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	+	56580	[illegible]	[illegible]	
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	− (1600)	258740	[illegible]	[illegible]	
	[illegible]	[illegible]			[illegible]	[illegible]	[illegible]	− (1600)	1081[illegible]	[illegible]		

July 1978
#11

% Ret	Date	Broke Used	Pulps	Storage Tank No	Slab Waste	Stub Rolls	Rej Prod	Good Prod	Storage Tank Adj	Total Raw Mat	[illegible]
816	5	[illegible]	30664	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
1034	6	6900	31082	[illegible]	700	4800	[illegible]	[illegible]			
850	7	6200	43934	[illegible]	6650	—	—	[illegible]			
[illegible]	[illegible]	[illegible]	39502	[illegible]	[illegible]			[illegible]			
897	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			[illegible]			
897		[illegible]	[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		
1048	10	4200	44765	[illegible]	1400	—	—	[illegible]	—		
[illegible]	[illegible]	2700	31[illegible]	[illegible]	[illegible]	—	—	[illegible]	[illegible]		
762	12	7200	33184	[illegible]	1250	[illegible]	—	[illegible]	[illegible]		
985	13	7200	33504	[illegible]	[illegible]	[illegible]	—	[illegible]			
547	14	6400	31712	[illegible]	1650	[illegible]	[illegible]	[illegible]	[illegible]		
	[illegible]										
981		27700	174665		10300	9900	5180	[illegible]	—	[illegible]	[illegible]
924	17	7600	34092	[illegible]	400	3800	—	[illegible]	[illegible]	[illegible]	
964	18	[illegible]	37880	[illegible]	[illegible]	4750	[illegible]	[illegible]	[illegible]	[illegible]	
1006	19	6400	[illegible]	[illegible]	1100	4500	—	[illegible]	[illegible]	[illegible]	
887	20	5200	25246	[illegible]	1500	[illegible]	—	[illegible]	[illegible]	[illegible]	
698	[illegible]	7200	34756	—	300	3550	—	[illegible]	[illegible]	[illegible]	
907	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]			—		
1075	[illegible]	5200	25616	—	4700	[illegible]	—	[illegible]	—	[illegible]	
925		46800	227286		9300	26230	5400	[illegible]	[illegible]	[illegible]	
1051	[illegible]	4800	34866	[illegible]	6760	[illegible]	[illegible]	[illegible]	—	[illegible]	
937	25	5700	33542	—	1750	—	[illegible]	[illegible]		[illegible]	
947	26	7200	37710	7450	5400	—	[illegible]	[illegible]	—	[illegible]	
1023	27	5600	[illegible]	[illegible]	[illegible]	—	[illegible]	36650	—	[illegible]	
855	28	7200	36342	4950	1700	4000	—	[illegible]	—	[illegible]	
	[illegible]	[illegible]									
959		30700	174365		12210	4900	23510	145460	[illegible]	[illegible]	[illegible]
93[illegible]		13[illegible]400	768[illegible]		[illegible]		[illegible]	[illegible]	[illegible]		

868532

August 1978
#10

P. Albert	Calgon	Sodium Bicarb	Sta Lok 130	Calc Carb	Ultra Cote	Amko (gold)	Zeta	Brake
05-10-1383 / 05-10-1383								
13605	8644	90	900	4500	6300	1800	3600	1800
13608	8604	90	900	4500	6300	1800	3600	1800
✓	✓	✓	✓	✓	✓		✓	✓
[illegible] ✓	[illegible] ✓	90 ✓	[illegible] ✓	45[illegible] ✓	6300 ✓	1800 ✓	3600 ✓	1800

7

16

Trials

August 1978
#11

Brake	Date	Bl AHW	Calgar	Calc Carb	[illegible]
	[illegible]				
	[illegible]	44.			
		[illegible]	114[illegible]	[illegible]	
	3		✓	✓	
	[illegible]				
	[illegible]				
[illegible]		4:80	1147[illegible]	4[illegible]	[illegible]
✓	7				
	[illegible]				
	[illegible]				
	11				
	12				
	14				
	15				
	16				
	17				
	18				
	19				
	20				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				
	[illegible]				
		4:[illegible]	[illegible]	4[illegible]	

Bleached Tulips #10 August 1978

Date	535 AHW Bl	535 AJW Bl	504 P Acent	478 Celgar	488 Bl Domtar	324 Westraco	476 Bl Dryden	Brake
731				[illegible]	13660			[illegible]
8/1				57136	39044			[illegible]
2				18640	12688			[illegible]
3				18640	12688			[illegible]
4			10080	2868	16592			[illegible]
5			[illegible]		17568			[illegible]
			[illegible]		17568			[illegible]
			34272	65944	94672			34[illegible]
7			11088		16104			[illegible]
8			11088		16104			[illegible]
9			13104		[illegible]			[illegible]
10			10096		17568			652[illegible]
11			10080		14640			45[illegible]
12								
			57456		83448			25[illegible]
14			12096		17568			[illegible]
15			[illegible]	18640	4390			[illegible]
16			10096	[illegible]				[illegible]
17			[illegible]	15174	7805			[illegible]
18				17208	11712			[illegible]
19				[illegible]	13664			[illegible]
20				1510	14440			[illegible]
			43[illegible]	110[illegible]	17794			[illegible]
21			[illegible]	[illegible]	[illegible]			
22			[illegible]		[illegible]			
23			[illegible]		996	11360	[illegible]	
24			[illegible]			5[illegible]	17136	
25			20160			6480	19040	
26			17136			5[illegible]	16184	
27			[illegible]			3[illegible]	[illegible]	
			127512	5724	173328	23004	77968	
			[illegible]	[illegible]	[illegible]	[illegible]	77968	

S.7#1

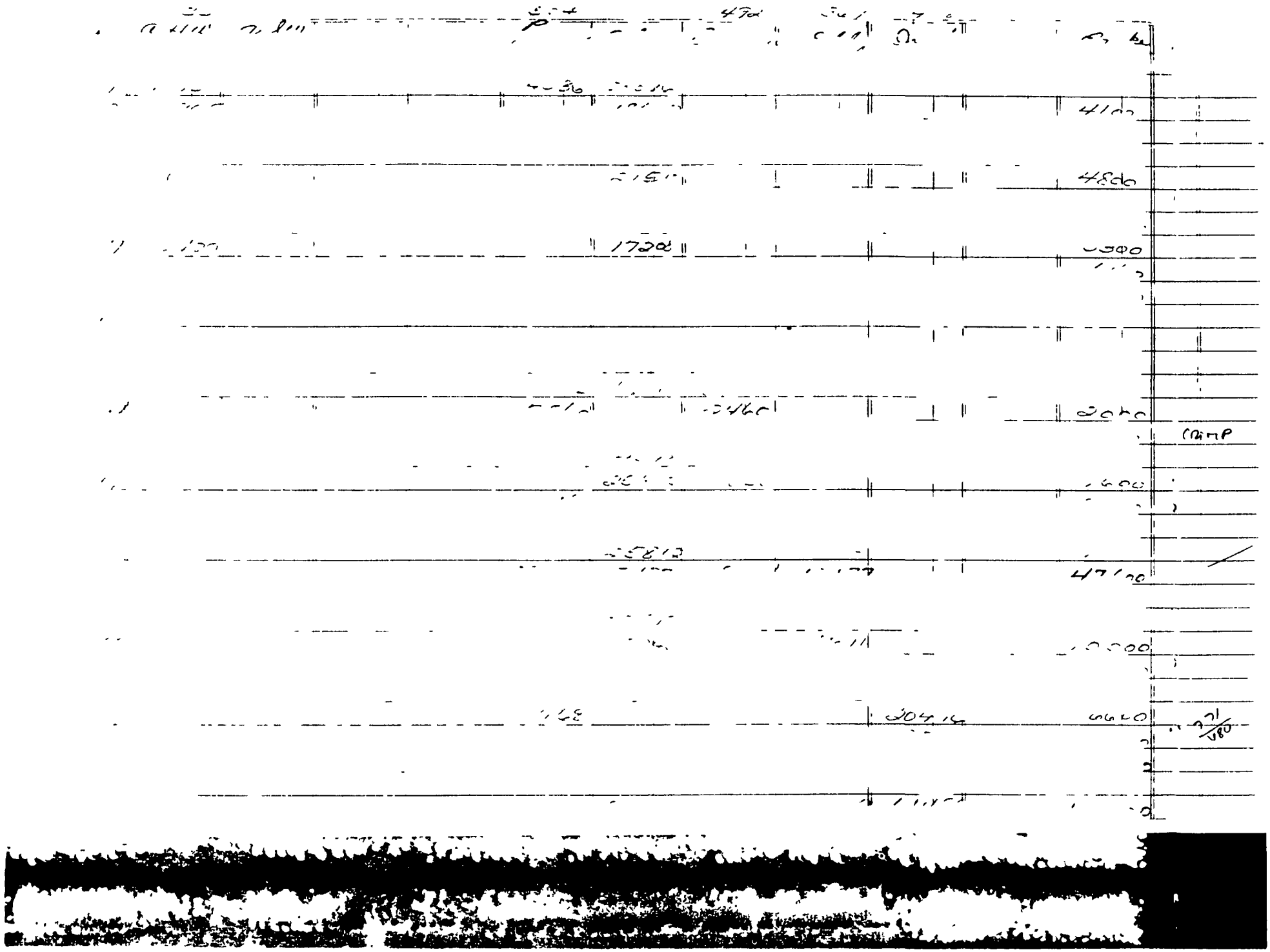
500
500
—
504
550
550
450
450
450
450
(110)

58
868535

[redacted]

Brake	Remarks 8.7# per gal Lime 8# per gal	Alginate	Calc Carb	Dolomite	Magnesite	Sodium Bicarb	Alta	Oracle	Sizer	Clay	Alum	Zeolite Cat.
[illegible]							500	[illegible]	350			
[illegible]	400		1600				750	[illegible]				
[illegible]	400		5[illegible]			[illegible]	[illegible]	[illegible]				
[illegible]	400		5200			12[illegible]	3165	1584				
[illegible]	400		4800			[illegible]	[illegible]	[illegible]				
	400		4[illegible]				[illegible]	[illegible]				
	446	5350 →	[illegible]			[illegible]	[illegible]	[illegible]				
74[illegible]			16400			600	1434	1016	350		1036	
4400	500		5600			110	3967	1433				
4400	500		1000			[illegible]	3167	1639	220		635	[illegible]
4500	—		—				5200	[illegible]	350		[illegible]	[illegible]
4500	504		6050			120	[illegible]	[illegible]				
4500	550		5500			100	[illegible]	[illegible]				
5300			18050			350	1781	5571	550		1557	[illegible]
[illegible]	550		6600			12[illegible]	5200	1605				
[illegible]	481		7100			160	[illegible]	[illegible]				
[illegible]	450		5400			120	[illegible]	[illegible]				
[illegible]	450		4950			110	[illegible]	1821				
[illegible]	450		4650			90	4[illegible]	[illegible]	75			
7[illegible]	400						[illegible]	[illegible]	25[illegible]		[illegible]	
7500							5467	[illegible]	370		[illegible]	
16500			28700			600	3279	1565	800		[illegible]	[illegible]
7[illegible]							5120	[illegible]	320		[illegible]	
6[illegible]							4[illegible]	[illegible]	3[illegible]		[illegible]	[illegible]
[illegible]							4[illegible]	[illegible]	[illegible]			
7[illegible]							5[illegible]	2[illegible]	315		7[illegible]	[illegible]
8500							[illegible]	[illegible]	350		10[illegible]	
[illegible]	406 / 470						4[illegible]	[illegible]	275		10[illegible]	
							4[illegible]	[illegible]	[illegible]		[illegible]	
4[illegible]							31825	15715	22061		6737	16100
[illegible]			75[illegible]			15[illegible]	[illegible]	[illegible]			115[illegible]	67[illegible]

58 968536


4100
4800
1720
2060
47100
6640

Bleached Pulps #11 August 1973

Broke			Zelex	Lita	Calc Carb	Mapico Yellow	Tita	Size	clay	alum
[illegible]		1214			[illegible]					
[illegible]		–			[illegible]					
[illegible]		1215			[illegible]					
4200		14 1439			[illegible]					
[illegible]		15 1107			[illegible]					
[illegible]		15 ~~1210~~ 1130			[illegible]					
[illegible]		15 1180			[illegible]					
3200					12950					
3300		12 1179			14150					
6400		—				[illegible]		375	815	
1200		—				750		75	[illegible]	
		—								
		—								
10900					14150	4650		450	982	
[illegible]		—				1150		[illegible]	275	
[illegible]	CAMP.	18 977			17600					
4800		17 900			15500					
[illegible]		—				[illegible]		[illegible]	[illegible]	
[illegible]						[illegible]		450	981	
[illegible]						3800		[illegible]	1330	
7000		1156				3600		450	[illegible]	
17600					3[illegible]400	16000		1950	[illegible]	
[illegible]						[illegible]		[illegible]	[illegible]	
[illegible]						[illegible]		[illegible]	[illegible]	
[illegible]						[illegible]		[illegible]	[illegible]	
[illegible]						6000	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]							1800	[illegible]	[illegible]	[illegible]
6600	21/180						1300	[illegible]	[illegible]	1145
[illegible]			100				[illegible]	[illegible]		[illegible]
18500			100			11800	4650	2517	15200	6653
[illegible]			100		176300	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

August 1978

Date	Ansilex	Tita	Zeolex
7 31		4000	2000
8 1		4000	2000
2		4000	[illegible]
3		[illegible]	[illegible]
4		[illegible]	[illegible]
5		[illegible]	[illegible]
6			
		20000	10000
7			
8			
9			
10		2000	1000
11		4000	[illegible]
12		[illegible]	4000
		14000	7000
14		[illegible]	[illegible]
15		[illegible]	[illegible]
16		[illegible]	[illegible]
17		7000	3500
18			
19		[illegible]	4000
20		4000	[illegible]
		33000	16500
21		[illegible]	[illegible]
22			
23		[illegible]	1050
24		[illegible]	[illegible]
25		[illegible]	[illegible]
26		[illegible]	2000
27		5000	10000
		13000	25050

Date

Unbleached Pulps #11 August 1978

Date	475 Dryden Nu Dry	Miramichi	Bathurst	a SW Unbl	Domtar Unbl	Brunswick	Biocide	Alum/Soda
7 31								
2								
3								
4								
5								
6								
7								
8								
9	13300	7322	5[illegible]					[illegible]
10	10[illegible]	[illegible]	[illegible]		[illegible]			[illegible]
11	6650	73[illegible]	5894		[illegible]	3444	18	[illegible]
12								
	30875	24058	19366		9940	3444	18	[illegible]
14	11400	6276	5052					[illegible]
15								
16								
17								
18								
19								
20								
	11400	6276	5052					[illegible]
21								
22								
23								
24	7600	4184	3368					[illegible]
25								
26								
	7600	4184	3368					[illegible]
	49875	34[illegible]	27786		9940	3444	1[illegible]	[illegible]

068540

August 1978 #10

down +
up −

Date	Broke Used	Pulp	Storage Tank Inv (5000)	Slab Waste	Stub Rolls	Rej Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	% Ret
7 31	7000	41590	4800	5660	—	9370	25820	+ 3200	51790	40850	78.9
8 1	3800	54042	6400	10400	3700	420	23980	− (1600)	56242	38500	[illegible]
2	5200	47710	8000	6650	5150	3720	40530	− (1600)	51310	56050	[illegible]
3	5200	47512	8000	4500	4900	4840	37040	—	52712	51280	[illegible]
4	4800	[illegible]	6400	[illegible]	4300	—	39900	+ 1600	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	6400	[illegible]	4100	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
6	[illegible]	43784	[illegible]	1300	4400	—	[illegible]	—	48984	[illegible]	[illegible]
	36500	322882		33510	26550	21870	240020	+ 1600	360982	321950	89.2
7	4400	42102	6400	1250	4300	—	40160	—	46502	45710	98.3
8	5400	34837	6400	5770	1400	4080	25260	—	40237	36510	90.7
9	4500	44761	4800	3900	1200	[illegible]	43620	+ 1600	[illegible]	[illegible]	[illegible]
10	6500	[illegible]	6400	2800	3600	1260	32820	− (1600)	[illegible]	[illegible]	[illegible]
11	4500	38920	4800	1200	3600	8590	25220	+ 1600	45020	38610	[illegible]
12	Down										
	25300	208654		14720	14100	16045	167090	+ 1600	234954	212145	[illegible]
14	6500	[illegible]	8000	3800	3400	10140	21300	− (3200)	51684	38640	[illegible]
15	[illegible]	[illegible]	6400	3550	4100	[illegible]	27180	+ 1600	[illegible]	[illegible]	[illegible]
16	6000	[illegible]	[illegible]	2250	3200	[illegible]	28710	− (1600)	[illegible]	[illegible]	[illegible]
17	[illegible]	[illegible]	8000	2500	4460	2400	[illegible]	—	[illegible]	47880	[illegible]
18	6000	[illegible]	6400	[illegible]	4000	1300	37610	+ 1600	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	6400	[illegible]	—	1010	46910	—	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	1800	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
	[illegible]	[illegible]		[illegible]	19160	[illegible]	[illegible]	− (1600)	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	4800	2500	4090	3940	[illegible]	+ 1600	[illegible]	[illegible]	[illegible]
24	[illegible]	[illegible]	6400	[illegible]	5810	—	[illegible]	− (1600)	[illegible]	[illegible]	[illegible]
25	8500	[illegible]	6400	1800	900	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
26	[illegible]	[illegible]	6400	750	1400	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	4900	350	[illegible]	[illegible]	—	[illegible]	[illegible]	
	54500	[illegible]		[illegible]	12550	34310	301200	—	392659	360610	[illegible]
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	+ 1600	[illegible]	[illegible]	

Date

068541

August 1978
11

Pro St	Date	Broke Used	Pulpe	Storage Tank	Slab Waste	Stuc Rolls	Pay Prod	Good Prod	Storage Tank	Total Pulp maintenance	Pro St
5	31	[illegible]	63[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	5100	54107	[illegible]	16[illegible]	—	[illegible]	[illegible]	—		
[illegible]	[illegible]	[illegible]	61747	[illegible]	[illegible]	—		[illegible]			
773	3	4200	43766	7450	2750	—	—	[illegible]	—		
[illegible]	[illegible]	4500	46135	[illegible]	700	—	—	[illegible]	—		
[illegible]	[illegible]	[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]						—		
892		34600	364139		[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	
983	7	[illegible]	37778	7450	[illegible]	—	—	[illegible]	—		
907	8	6400	34335	[illegible]	5400	—	[illegible]	[illegible]	[illegible]		
[illegible]		7200	33353	[illegible]	[illegible]	2700	[illegible]	21100	—		
774	10	7200	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	
55[illegible]	11	5200	26807	[illegible]	1400	3500	—	[illegible]	—	[illegible]	
	12	[illegible]									
703		27300	166651		10500	10660	16470	143490	+ 1250	[illegible]	
745	14	6500	34022	4950	3550	1950	—	[illegible]	+ [illegible]	[illegible]	
674	15	[illegible]	51184	[illegible]	4700	50	—	31850	− (1200)	56[illegible]	
704	16	1[illegible]00	48346	—	1350	—	—	[illegible]	− 6[illegible]	57[illegible]	
542	17	7600	38765	—	1850	—	17[illegible]	[illegible]	—	[illegible]	
[illegible]4	18	7[illegible]	38[illegible]	[illegible]	13[illegible]	—	—	[illegible]	− (6[illegible])	41566	
930	19	7500	39072	[illegible]	—	—	—	[illegible]	—	[illegible]	
875	20	9000	36504	[illegible]	1450	—	1[illegible]	[illegible]			
827		5[illegible]400	288063		14000	[illegible]	19[illegible]	[illegible]	—	34[illegible]	
[illegible]54	21	[illegible]	38532	[illegible]	900	—	—	[illegible]	—	[illegible]	
[illegible]	22	[illegible]	36544	4950	100	—	1940	37185	+ 1250	[illegible]	
717	23	10000	38532	4950	2850	—	[illegible]	35[illegible]	—	[illegible]	
[illegible]47	24	5700	31242	4950	4800	—	1940	13670	—	[illegible]	
780	25	5400	44538	4950	—	2180	2340	[illegible]	—	[illegible]	
873	26	6600	51732	4950	100	2410	—	[illegible]	—	[illegible]	
	27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	
918		57700	290250		10850	6840	10200	243130	+ 1250	343200	
[illegible]		[illegible]	110[illegible]		57[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	

SA 068542

Treals

September 1978
#10

Date	
8 28	
29	
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9 1	
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58 068543

Trials September 1978
#11

Date

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Bleached Pulps #10 September 1978

Date	a HW Bl	a SW Bl	P Albert (504)	Calgary (473)	Bl Domtar	Dryden (473)	Brake
5 28			21168			13244	[illegible]
29			21165			[illegible]	[illegible]
30			24192	[illegible]		7568	[illegible]
31			[illegible]	[illegible]			
9 1			[illegible]	[illegible]			
2							
			105840	32164		34056	[illegible]
4							
5			[illegible]	[illegible]			[illegible]
6			21168	13244			7000
7			21168	[illegible]			[illegible]
8			[illegible]	14190			
9			24192	15136			[illegible]
10			[illegible]	[illegible]			
			131544	82302			43500
11			22680	11170			[illegible]
12			[illegible]	[illegible]			
13			[illegible]	[illegible]			[illegible]
14			[illegible]	[illegible]			[illegible]
15			[illegible]	[illegible]			[illegible]
16							
			[illegible]	67166			35[illegible]
18			[illegible]	[illegible]			
19			[illegible]	[illegible]			[illegible]
20			[illegible]	[illegible]			[illegible]
21			[illegible]	[illegible]			
22			12096	17028			[illegible]
23			[illegible]	[illegible]			[illegible]
24							
			[illegible]	[illegible]			[illegible]
25			[illegible]	[illegible]			
26			[illegible]	[illegible]			
27			6045	[illegible]	11066		
[illegible]				[illegible]	[illegible]		
[illegible]				[illegible]	[illegible]		
30							
			[illegible]	117777	43258		[illegible]
			[illegible]	[illegible]	[illegible]		

50 068545

[redacted]

18 Neuphor Size 8 7# per gal 8# per gal

Brake	Alphasize	Calc Carb	Cabolite	Mapuc Yellow	Sodium Bicarb	Tita	Zolex	Sing	Clay	Alum	Ultra Cote	Stan
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]						[illegible]	[illegible]	[illegible]				
[illegible]						[illegible]	[illegible]	[illegible]				
[illegible]						[illegible]	[illegible]	[illegible]				
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]						[illegible]	[illegible]	1750		[illegible]		
7000						1634	816	246		916	4550	
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]						3000	1500	375		[illegible]		
[illegible]						[illegible]	1600	[illegible]		[illegible]		
7000						[illegible]	[illegible]	350				
13500						14434	7216	1891		[illegible]	[illegible]	
150						[illegible]	[illegible]	[illegible]		[illegible]		
						[illegible]	[illegible]	[illegible]		[illegible]		
7000						[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]						5174	2566	350		[illegible]		
35000						22898	11382	1775		5031	850	[illegible]
[illegible]						5133	[illegible]	350		[illegible]		
[illegible]						[illegible]	[illegible]	375		[illegible]		
[illegible]						5234	2616	350		[illegible]	[illegible]	
[illegible]						5334	[illegible]	350		[illegible]		
[illegible]						4800	2400	300		[illegible]	[illegible]	
5400						5600	[illegible]	350		[illegible]		
[illegible]						5600	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]						37[illegible]	18579	2475		[illegible]	[illegible]	
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]						5117	[illegible]	[illegible]				
[illegible]						5100	[illegible]	[illegible]		[illegible]		
[illegible]						[illegible]	[illegible]	340		[illegible]		
						5000	[illegible]	[illegible]		[illegible]		
[illegible]						27034	13516	1700		5820	115[illegible]	
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	

SD 068546

Date	535 AHW Bl	A SW Bl	504 Prince Albert	473 Celgar	488 Brunswick	503 Domtar	398 Eddy	600 Grand Prairie	Brooke
8 28			[illegible]			19[illegible]4			[illegible]
29			[illegible]			21156			[illegible]
30			[illegible]			[illegible]			[illegible]
31			[illegible]			70[illegible]	[illegible]		[illegible]
9 1									
2									
			64512			6[illegible]408	3184		[illegible]
4	[illegible]					[illegible]			
5				19[illegible]66					
6	7490			13244		7042			[illegible]
7				17974		[illegible]		[illegible]	[illegible]
8				16082					
9				15136				[illegible]	[illegible]
10	[illegible]			6[illegible]		[illegible]		1[illegible]	
	21935			88924		40240		54600	29400
11				[illegible]		[illegible]			[illegible]
12				[illegible]		[illegible]			
13				17866		[illegible]			[illegible]
14				1[illegible]		[illegible]			[illegible]
15				15[illegible]		16096			[illegible]
16									
				93654		99594			376[illegible]
18			[illegible]	[illegible]	7[illegible]	[illegible]			[illegible]
19			[illegible]	16[illegible]	[illegible]				[illegible]
[illegible]			[illegible]	[illegible]	7[illegible]				[illegible]
[illegible]			[illegible]	17[illegible]	8784				[illegible]
[illegible]			9072	17038	8784				[illegible]
[illegible]			[illegible]	16[illegible]	[illegible]				
[illegible]				[illegible]	[illegible]				
			[illegible]	116358	5[illegible]	7545			4[illegible]
[illegible]			[illegible]	[illegible]	8784				
26			[illegible]	16[illegible]	[illegible]				
[illegible]			[illegible]	[illegible]	8784				[illegible]
[illegible]				[illegible]	[illegible]	[illegible]			
29				1702	[illegible]784		[illegible]		
30									
			[illegible]	84174	43432	9054	7164		35[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		

Bleached Pulp #11 September 1975

Broke	Zeolite	Total	Calc Carb	Yellow Mapico	Size	Clay	Sta Loc	Alum
[illegible]		140[illegible]			[illegible]	[illegible]		
[illegible]		10[illegible]				[illegible]		
		[illegible]						
[illegible]		5[illegible]						
[illegible]		4[illegible]			11[illegible]	[illegible]		[illegible]
[illegible]								
3900			13300					
[illegible]			[illegible]				[illegible]	
[illegible]			4650				8[illegible]	
1500			[illegible]				80[illegible]	
[illegible]			[illegible]					
9400			57650				2600	
9200		1450				[illegible]		
[illegible]		[illegible]				[illegible]		
[illegible]		1[illegible]				[illegible]		
[illegible]		[illegible]			[illegible]	[illegible]		
39600		9800			1753	36600		5376
[illegible]				[illegible]	[illegible]			[illegible]
[illegible]				[illegible]	[illegible]			
[illegible]				3[illegible]00	[illegible]			[illegible]
[illegible]				[illegible]				[illegible]
[illegible]				3600	315			[illegible]
[illegible]				3[illegible]	[illegible]			[illegible]
[illegible]				34[illegible]	[illegible]			[illegible]
49600				248[illegible]	2156			6707
[illegible]				3400	[illegible]			[illegible]
1200				3600	315			[illegible]
[illegible]				3600	315			[illegible]
[illegible]				3600	315			[illegible]
[illegible]5200				17800	1558			4851
		14						
[illegible]	9-23 9-30	200 100	[illegible]	42600	6664	63[illegible]	2600	

September 1978

Date	Ansilex	Tita	Zealex
[illegible]		[illegible]	1000
		[illegible]	1000
		4000	[illegible]
31		4000	1950
[illegible]		[illegible]	2000
2			
		14000	7950
4			
5			
[illegible]			
7		4000	2000
8		4000	2000
9		6000	2800
10			
		14000	6800
11		4000	2000
13			
14		4000	2000
15		8000	4000
16		[illegible]	[illegible]
		20000	10000
18		[illegible]	[illegible]
19		[illegible]	4000
20		[illegible]	[illegible]
21		[illegible]	[illegible]
22		[illegible]	[illegible]
[illegible]		[illegible]	[illegible]
		[illegible]	[illegible]
		[illegible]	16000
[illegible]		[illegible]	[illegible]
[illegible]			
21		[illegible]	[illegible]
25			
[illegible]		[illegible]	[illegible]
30			
		16450	7800
		[illegible]	4550

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58 068549

Unbleached Pulps September 1978
#11

Date	Dryden Nw Dry	Bathurst Miramichi		alum	Bulks
31	[illegible]	[illegible]	[illegible]	[illegible]	
1	12147	5421			
2					
	24284	10171	3591	11	[illegible]
4					
5					
6					
7					
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11					
12					
13					
14					
15					
16					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	24[illegible]	10193	3517	14[illegible]	

SO 068550

September 1978.
#10

Date	Brake Used	Pulps	Storage Tank In	Slab Waste	Stub Rolls	Ry Prod	Good Prod	Storage Tank Adj	Total Raw Mat	Gross Prod	% Ret
28	7000	44212	6400	2600	—	4200	42680	—	51212	49480	[illegible]
29	7000	[illegible]	6400	700	—	4110	47290	—	52860	52100	906
30	[illegible]	[illegible]	6400	2100	—	—	51030	—	61600	[illegible]	
31	7000	[illegible]	[illegible]	[illegible]	—	—	46610	—	[illegible]	[illegible]	[illegible]
91	6000	[illegible]	9600	600	—	—	43070	-(3200)	[illegible]	[illegible]	
	[illegible]										
	35000	226760		9050	—	8310	229680	-(3200)	255560	247040	[illegible]
4 5	7000	[illegible]	4800	1650	1890	1310	42870	+4800	56187	[illegible]	
6	7000	44458	4800	1150	2860	3960	43850	—	51458	51820	1007
7	6500	[illegible]	—	3200	60	2990	43650	+4800	[illegible]	47900	[illegible]
8	8000	[illegible]	6400	1250	—	4130	37870	-6400	47995	43250	[illegible]
9	8000	50128	6400	1800	—	3180	48000	—	58128	52980	911
10	7000	[illegible]	6400	5610	—	1390	40790	—	[illegible]	47790	[illegible]
	43500	272487		14660	4810	16960	257030	+3200	319187	293460	919
11	7500	46495	[illegible]	1250	2080	—	49550	+1600	[illegible]	[illegible]	[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	230		[illegible]	-(1[illegible])	[illegible]	[illegible]	
13	7000	[illegible]	[illegible]	950	—	4110	[illegible]	—	51862	[illegible]	[illegible]
14	[illegible]	[illegible]	6400	1400	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
15	6500	[illegible]	6400	1650	—	[illegible]	43790	—	[illegible]	[illegible]	[illegible]
16	[illegible]										
	35000	227473		6550	2310	8060	235330	—	262473	252250	961
18	7000	[illegible]	6400	2400	—	1330	47630	—	[illegible]	[illegible]	[illegible]
19	5900	[illegible]	6400	3450	3070	—	40410	—	[illegible]	46930	[illegible]
20	[illegible]	[illegible]	4800	850	2100	—	44700	+1600	[illegible]	47650	[illegible]
21	[illegible]	[illegible]	4800	600	2190	—	48020	—	[illegible]	[illegible]	[illegible]
22	7200	[illegible]	4800	2250	1640	4030	33290	—	[illegible]	[illegible]	[illegible]
23	[illegible]	[illegible]	4800	1500	2150	1940	43880		[illegible]	[illegible]	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	
	56300	310160		12100	13240	7300	303260	+1600	368060	[illegible]	[illegible]
25	[illegible]	[illegible]	6400	600	1260	650	44550	-(1600)	[illegible]	[illegible]	
26	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
27	[illegible]	[illegible]	6400	900	—	9770	41185	—	57177	51855	[illegible]
28	[illegible]	[illegible]	[illegible]	[illegible]	—	—	[illegible]	+1600	[illegible]	[illegible]	[illegible]
29	[illegible]	[illegible]	[illegible]	1550	—	—	47570	-(1600)	[illegible]	[illegible]	[illegible]
30	[illegible]										
	[illegible]	[illegible]		4450	1260	11110	236735	-(1600)	[illegible]	[illegible]	878
		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]

Date

50 068551

September 1978
#11

Pot	Date	Barrels Used	Pulps	Storage Tank Inv	Lime Waste	Lime Press	Rej Prod	Good Prod	Storage Tank Adj	Total Raw Mat	[illegible]	[illegible]
266	[illegible]	5700	47597	[illegible]	[illegible]	2170	[illegible]	[illegible]	[illegible]			
296	[illegible]	[illegible]	52112	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	7400	41113	[illegible]	[illegible]	1200	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	4500	24[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]		35500	217571		6050	2670	[illegible]	171[illegible]	-(1250)	[illegible]		
[illegible]		[illegible]	57[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
1007	6	3900	41076	7450	850	—	—	41060	-(1250)	43[illegible]	[illegible]	[illegible]
931	[illegible]	6000	44[illegible]	[illegible]	1200	—	[illegible]	[illegible]	+	[illegible]	[illegible]	[illegible]
901	[illegible]	5100	41983	[illegible]	290	—	[illegible]	37560	—	[illegible]	[illegible]	[illegible]
911	7	4500	39136	[illegible]	1600	—	—	39[illegible]	—	[illegible]		
932	[illegible]	3900	39015	6200	1750	—	—	38[illegible]	—	[illegible]		
919		29400	265949		11400	—	7900	[illegible]	—	27[illegible]	[illegible]	[illegible]
951	[illegible]	[illegible]	52[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	45[illegible]	[illegible]	[illegible]	[illegible]	5700	[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]	50519	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			
976	[illegible]	[illegible]	49390	7450	600	2170	—	4[illegible]	-(1250)	56[illegible]	[illegible]	[illegible]
981	15	6000	40237	7450	2800	1050	1610	3040[illegible]	—	[illegible]		[illegible]
	16	[illegible]										
961		39600	241406		4850	11660	7840	216060	-(1250)	279756	[illegible]	857
995	18	8400	43360	7450	1200	—	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
39	[illegible]	[illegible]	36[illegible]44	[illegible]	800	—	[illegible]	[illegible]	+	[illegible]	[illegible]	[illegible]
963	[illegible]	[illegible]	34487	6200	200	—	1750	36[illegible]	-(1250)	[illegible]	[illegible]	[illegible]
953	21	7200	38799	4750	650	—	—	40[illegible]	+ 1250	[illegible]	[illegible]	[illegible]
915	23	7200	38799	6200	200	—	—	43[illegible]	-(1250)	[illegible]	[illegible]	[illegible]
917	23	6800	36644	6200	850	—	1800	37[illegible]	—	434[illegible]	[illegible]	[illegible]
912	[illegible]	6800	36[illegible]	6200	400	—	—	4[illegible]	—	[illegible]	[illegible]	[illegible]
913		49600	265379		4300	—	5660	279[illegible]	+ 1250	316[illegible]	[illegible]	[illegible]
[illegible]	25	7200	38799	7450	1250	—	1800	36[illegible]	-(1250)	[illegible]	[illegible]	[illegible]
973	26	6800	36[illegible]	[illegible]	[illegible]	—	[illegible]	3[illegible]	+	[illegible]	[illegible]	[illegible]
907	27	7200	38799	6200	800	—	—	40310	-(1250)	44749	[illegible]	[illegible]
976	[illegible]	7800	38781	4950	1350	—	3370	36770	+ 1250	[illegible]	[illegible]	[illegible]
974	27	6800	36891	4950	500	—	1830	41790	—	43[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]									
878		35200	189914		5870	—	13050	184960	+1250	[illegible]63644	[illegible]	901
[illegible]		1[illegible]4300	1180224		32470	20330	41450	[illegible]	—	12[illegible]	[illegible]	[illegible]

2558990 85

Fuels

October 1978
10

Date		P Albert	Zolix	Tita	Clay	Calc Carb	Sta Lok 130	Sodium Bicarb	Broke
10	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	13								
	14								
					10-0887				
	16	11569	1000	2000	3500	2500	500	50	1500
	17								
	18								
	19								
	20								
	21								
	22								
		11569	1000	2000	3500	2500	500	50	1500
	23								
	24								
	25								
	26								
	27								
	28								
		115[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59	

Dat

50 068553

Trials October 1978 #11

Brake	Date	535 AHW Bl.		Brunswick	Celgar	Eddy	Calc Carb	Clay	Tita	Sodium Bicarb	Sta Tec	Bo...
	[illegible]	[illegible]24		974[illegible]	10-11-0878		[illegible]	[illegible]	5[illegible]			
	3											
	4											
	5											
	6											
		6424		9944			800	4000	550	[illegible]		—
	9											
	10											
	1											
	13											
	14											
[illegible]	16											
	17					10-11-0[illegible]						
	18				8496	7236	3200	4500	4500	90	[illegible]	[illegible]
	19											
	20											
	21											
	22											
500					8476	7236	3200	4500	45[illegible]	90	[illegible]	[illegible]
	23											
	24											
	25											
	26											
	27											
	28											
[illegible]		[illegible]424		9944	8476	7236	4[illegible]	8500	5[illegible]	1[illegible]		

SA 068554

Bleached Pulps #10 October 1978

Date		535 AHW Bl	535 ASW Bl	503 P Albert	472 Celgar	503 Bl Domtar	468 Dryden	402 Eddy	474 Marathon	Brake
10	2				15104	8048		[illegible]		
	3	3484			16048	8551		13668		
	4	1340			14160	17605		4020		
	5				15104	24144				
	6				14160	[illegible]				
	7				15104	[illegible]				
	8				15104	[illegible]				
		4824			104784	[illegible]		30552		[illegible]
	9	2412			16048	25653				
	10	1070			14160	22635				[illegible]
	11				[illegible]	[illegible]				[illegible]
	12			7545	[illegible]	[illegible]				[illegible]
	13			11066	15576					[illegible]
	14									
		3482		18611	77883	71929				264[illegible]
	16			[illegible]						[illegible]
	17			17605	4720					[illegible]
	18			[illegible]	[illegible]			[illegible]		[illegible]
	19			19617				[illegible]		[illegible]
	20			21126			1872	[illegible]		560
	21			19617			12168			[illegible]
	22			24144			14976			[illegible]
				146976	8476		29016	23316		34800
	23			[illegible]	[illegible]		7756			
	24			16[illegible]96	[illegible]					
	25				[illegible]	16[illegible]				
	26				[illegible]		5616		9480	[illegible]
	27				[illegible]				[illegible]	
	28									
				35713	[illegible]	[illegible]	13572		16116	[illegible]
		[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

8.7

[redacted]

Neuphax Size 8.7# per gal. 8# per gal

Brake	Alphasize	Calc. Carb	Cabolite	Mapico Yellow	Sodium Bicarb	Teta	Zolex	Size	Clay	alum	Ultra Cote	# Stan
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]						[illegible]	[illegible]	340		[illegible]	[illegible]	
[illegible]						[illegible]	[illegible]	375		[illegible]	[illegible]	
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]		
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]						[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
13400						28802	14398	2610		8683	[illegible]	
[illegible]						6300	3150	425		[illegible]	[illegible]	
[illegible]						5000	[illegible]	320		[illegible]	[illegible]	
4800						[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
5600						[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	
4000						[illegible]	[illegible]	193		[illegible]	[illegible]	
6400						23634	11816	1398		6099	10350	[illegible]
[illegible]		3750			90	2400	1200				2700	[illegible]
3600		4050			90	2400	[illegible]				[illegible]	
[illegible]		5400			120	3200	1600				[illegible]	
[illegible]		5850			130	3467	1733				[illegible]	
[illegible]		5700			140	3734	1866				[illegible]	
[illegible]		5500			130	[illegible]	1733				[illegible]	
[illegible]		6550			160	4267	2133				[illegible]	
4800		36800			860	22935	11465				18100	[illegible]
[illegible]		7200			160	4267	2133				[illegible]	
[illegible]		7100			160	4267	2133				[illegible]	
[illegible]						[illegible]	[illegible]	360		[illegible]	[illegible]	
6400						4800	2400	320		1134	2400	
[illegible]						2100	1050	140		496	[illegible]	
[illegible]		14300			320	20834	10416	820		2905	12550	[illegible]
3800		51100			1180	[illegible]	4809	823		17684	[illegible]	

SA 068556

Date	535 A H W Bl	A S W Bl	468 Dryden	324 Westvaco	503 Prince Albert	472 Celgar	497 Brunswick	Manitoba	402 Eddy	Grand Prairie	Broke
10 2						21240			6030		[illegible]
3						23128			[illegible]		[illegible]
4						[illegible]			[illegible]		[illegible]
5						21712			18472		[illegible]
6					[illegible]	18[illegible]			[illegible]		[illegible]
7					25150				[illegible]		[illegible]
8					[illegible]				[illegible]		
					70420	59680			111756		55600
9	3216				[illegible]	11328			8040		[illegible]
10	4824				18108	16992					[illegible]
11	535				[illegible]	[illegible]	8449				[illegible]
12						[illegible]	10431		11256		[illegible]
13	535			3888		8496	[illegible]		15888		6800
14											
	9110			[illegible]	50803	71272	21868		35184		38800
16	8560					22656					[illegible]
17	5350					[illegible]			[illegible]		[illegible]
18				2592		[illegible]			[illegible]		[illegible]
19					15090	[illegible]			16080		[illegible]
20			13104		4024				14472		[illegible]
21			14040		[illegible]				[illegible]		[illegible]
22			15912		17102						[illegible]
	13910		[illegible]	2592	[illegible]	36816			46632		31500
23			[illegible]		[illegible]	[illegible]					[illegible]
24			[illegible]			16048					[illegible]
25			[illegible]			17936					[illegible]
26			4650			15104		15428			[illegible]
27						15104		15168			[illegible]
28											
			54288		3018	77408		25596			[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	25596	[illegible]		[illegible]

Bleached Pulps #11 October 1978

Broke	Globe	Ita	Zeolex ~~Brooke~~	Calc Carb	yellow Mapico	Size	Clay	Sta Tac	Starch	Alum	Sodium Sulphate
[illegible]		[illegible]		[illegible]					[illegible]		
[illegible]		400		[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	
[illegible]		1450				[illegible]	[illegible]				
[illegible]		1900				[illegible]	[illegible]				
[illegible]		2400					[illegible]				
[illegible]		[illegible]									
[illegible]		2500									
5600		10950		6600		2207	50400		1300	[illegible]	[illegible]
[illegible]		[illegible]				[illegible]	[illegible]			[illegible]	
[illegible]		[illegible]				[illegible]	7100				
[illegible]		[illegible]					[illegible]				
[illegible]		[illegible]									
[illegible]		1800				[illegible]	[illegible]			[illegible]	
38800		11400				1553	33300			6244	
5100				17000							
[illegible]				9400							
[illegible]		800				[illegible]	[illegible]			[illegible]	
[illegible]		2000				[illegible]	7000			[illegible]	
[illegible]		7050	[illegible]			470	1050			[illegible]	
4500		[illegible]	[illegible]			[illegible]				[illegible]	
5100		6800	2550			255				[illegible]	
31500		22450	7050	28400		1170	10850			5316	
5100		6800	2550			[illegible]					
5100		6800	[illegible]			[illegible]					
5700		7600	2850			[illegible]					
4500		6400	2400			240				1221	
5800		3250	1400			340	3000			1112	
[illegible]											
[illegible]		30850	11750			1275	3000			6377	
[illegible]		154450	18800	35000		[illegible]	[illegible]		130	1141	

[illegible] 1978

Date	Ansilex	Tita	Zeolex	Indea	Unisize	Date
		2000	1000		500	10 2
					500	3
		[illegible]	1000		250	4
		[illegible]	4000			5
						6
		4000	2000			7
		[illegible]	4000			8
		24000	12000		1250	
		4000	[illegible]			9
		4000	2000			10
		4000	2000			11
		4000	2000			12
						13
						14
		16000	8000			
		[illegible]	4000			16
		[illegible]	1000			17
		[illegible]	1000			18
		[illegible]	1000			19
		[illegible]	1000			20
						21
						22
		16000	8000			
		[illegible]	[illegible]	[illegible]		23
		[illegible]	3000	[illegible]		[illegible]
		4000	[illegible]			[illegible]
		[illegible]	4000			[illegible]
						[illegible]
						28
		19900	10000	110		
		[illegible]	[illegible]	110	[illegible]	

SA 068559

Unbleached Pulps #11 October 1948

Date	Dryden Pu Dry			Bathurst Miramichi				alum		
10										
3										
4										
5										
7										
10										
11										
12										
13										
14										
16										
17										
18										
19										
20										
21										
22										
23										
24										
27										
28										

SA 068560

October 1978 #10

down T
up —

Date	A Broke Used	B Pulpwood	6400 Storage Tank Inv	C Slab Waste	D Stub Rocks	E Pay Pulp	F Good Prod	G Storage Tank adj	A+B+G Total Raw Mat	C+E+F Gross Prod	% Eff
10 2	6800	45136	4800	2350	3850	1200	37650	+ 1600	53536	45050	84.1
3	6800	54241	—	2950	4600	1190	45530	+ 4800	65841	54330	82.5
4	6000	45800	8000	2500	500	3280	37600	− (8000)	46000	45880	99.7
5	6400	52248	6400	750	—	—	52480	+ 1600	60248	53230	88.4
6	5600	49170	4800	1150	4500	3650	45530	—	54770	54530	100.1
7	5800	51748	6400	400	300	2670	47500	—	61548	50870	82.4
8	5600	50048	6400	1550	—	—	48000	—	56048	[illegible]	[illegible]
	43400	350591		11650	13750	11990	316380	—	393991	353770	89.8
9	6000	58538	6400	1050	—	2620	46500	—	64538	50170	77.7
10	6000	48735	4800	1300	—	3940	44420	+ 1600	56335	49660	88.2
11	4800	38246	—	1500	—	[illegible]	34860	+ 4800	47846	37030	81.6
12	5600	43991	8000	4800	—	[illegible]	33105	− (8000)	41591	40635	97.7
13	4000	34985	4800	300	—	1290	42560	+ 3200	42185	44150	104.7
14	Down										
	26400	224495		8950	—	13250	201445	+ 1600	252495	223645	88.6
16	5500	58094	8000	9550	1140	3500	11660	− (3200)	60394	24870	41.2
17	3600	31865	8000	4600	1580	4890	15980	—	42465	27050	63.7
18	4800	45444	6400	2050	1280	—	47460	+ 1600	51844	50790	98.0
19	5200	45249	8000	1250	—	6080	38990	− (1600)	45449	46320	101.9
20	5600	48886	8000	750	—	—	44760	—	54486	45510	83.5
21	5000	47615	8000	850	—	1240	43970	—	[illegible]	46060	[illegible]
22	6400	57430	6400	650	—	—	48230	+ 1600	65430	48880	74.7
	36300	334583		18700	4000	15720	251050	− (1600)	[illegible]	289480	78.4
23	6400	58300	4800	600	—	—	44470	+ 1600	60501	44670	[illegible]
24	6000	52812	4800	750	—	1890	41980	—	64812	44620	[illegible]
25	7600	56690	6400	2300	—	2760	43130	− (1600)	67690	48190	71.2
26	6400	54012	8000	800	—	1350	41100	− (1600)	59412	43250	[illegible]
27	2800	26888	6400	5400	—	—	35450	+ 1600	35288	38850	1140
28	Down										
	29200	248799		9450	—	6000	194100	—	277999	209550	75.4
	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]

[redacted]

October 1978
#11

Pt	Date	Broke Used	Pulps	Storage Tank Inv	Slab Waste	Stub Rolls	Rep Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	% Pt
841	10.2	[illegible]	53218	4950	8650	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
825	3	6600	41472	4950	5150	—	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
997	[illegible]	[illegible]	51257	[illegible]	[illegible]	4050	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
884	5	9200	51707	4950	2150	[illegible]	—	[illegible]	+ 1250	[illegible]	[illegible]	[illegible]
1001	6	9600	55736	[illegible]	500	2450	[illegible]	[illegible]	-(1250)	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	53533	[illegible]	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
898		58600	365111		18050	13800	8520	29842	-(1250)	[illegible]	[illegible]	[illegible]
777	9	8800	56101	[illegible]	100	2610	[illegible]	[illegible]	—	[illegible]	[illegible]	[illegible]
882	10	7200	49422	[illegible]	1400	2420	—	48740	—	[illegible]	[illegible]	[illegible]
816	[illegible]	[illegible]	46668	[illegible]	[illegible]	[illegible]	—	[illegible]	—	[illegible]	[illegible]	[illegible]
977	[illegible]	[illegible]	46925	[illegible]	—	2570	[illegible]	[illegible]	+ 1250	[illegible]	[illegible]	[illegible]
1047	13	6800	39257	[illegible]	1750	2280	—	[illegible]	-(1250)	[illegible]	[illegible]	[illegible]
	14	Down										
886		38800	238378		4250	12350	2340	240890	-(1250)	275928	[illegible]	[illegible]
412	16	5100	50216	6200	7450	900	—	25180	+ 1250	56566	[illegible]	[illegible]
763	17	2700	27650	4950	5200	990	[illegible]	25800	+ 1250	[illegible]	[illegible]	[illegible]
980	18	5400	45442	4950	300	570	2000	[illegible]	—	[illegible]	[illegible]	[illegible]
948	19	6000	45190	[illegible]	350	—	—	46890	-(2500)	[illegible]	[illegible]	[illegible]
835	20	5400	42220	7450	3200	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
872	21	4500	36999	7450	1750	—	1930	35050	—	[illegible]	[illegible]	[illegible]
747	22	5100	42619	4950	—	—	—	44270	+ 2500	50217	[illegible]	[illegible]
784		34200	290336		18250	2460	6430	230010	+ 2500	327036	[illegible]	78.6
674	23	5100	41751	6200	400	—	2100	35030	-(1250)	[illegible]	[illegible]	[illegible]
688	24	5100	41565	6200	—	—	—	43180	—	[illegible]	[illegible]	[illegible]
769	25	5700	46455	[illegible]	250	—	—	[illegible]	—	[illegible]	[illegible]	[illegible]
735	26	4500	39252	6200	1450	—	—	39600	—	[illegible]	[illegible]	[illegible]
1140	27	5800	38162	4950	1100	—	2100	39980	+ 1250	[illegible]	[illegible]	[illegible]
	28	Down										
754		26200	207185		3200	—	4200	200450	—	[illegible]	[illegible]	[illegible]
832		157800	1101010		43750	[illegible]610	21490	[illegible]	—	[illegible]	[illegible]	[illegible]

SR 069562

Trials

November 1978
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Trials November 1978 #11

Date	AHW	Tempest		Brake
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SP 068564

Bleached Pulps #10 November 1978

Date	AHW	A&W Bl	P Albert	Celgar 480	Marathon 492	Weyerhauser Bl 481	Superior 517	Broke
1030				26880	6888			[illegible]
31				25440		10582		6900
11.1				21600		14430		6000
2				24480		16354		6800
3				23040		13468	2068	6400
4				18720			13442	5200
5				21600	1476		16544	6400
				161760	8364	54834	32054	45200
6					22140		15510	6000
7					22140		15510	6000
8					20664		14476	5600
9					19188		13442	5200
10				4320	19188		8272	4800
11				+				
				4320	103320		67210	27600
13				21600	984		14476	6400
14				10560			17061	4400
15				13440		1924	19646	5600
16				15360		23088		6400
17				13440		20212		5600
18				16320		24531		6800
19				17280		25974		7200
				108000	984	95729	51183	42400
20				22080	984	15392		6400
21				20160	13776			5600
22				21600	14760			5600
23				18720	12792			5600
24				18720	12792			4800
25								
				101280	55104	15392		28000
				375360	167772	165955	159447	

50 068565

[redacted]

Broke	Neuphor Size 8.7# per gal	8# per gal Alginate	Calc Carb	Calcite	Impure yellow	Sodium Bicarb	Ita	Zorbo	Size	Clay	Alum	Ultra Cote	Hi Stack
7500							[illegible]	[illegible]	280		[illegible]	[illegible]	16[illegible]
6900							5000	2500	300		1063	2250	—
6000							5000	2500	300		1063	2250	
6800							5133	2567	340		1204	2550	[illegible]
6400							4800	2400	320		1134	2400	[illegible]
5200							3900	1950	260		921	1950	[illegible]
6400							4800	2400	320		1134	2400	[illegible]
45000							37900	16484	2100		7510	[illegible]	[illegible]
6000							4500	2250	300		1063	2250	1000
6000							4500	2250	300	2250	1063		[illegible]
5600							4200	2100	280	2100	992		2[illegible]00
5200							3900	1950	260	1950	921		3200
4800							3900	1950	260	1950	921		900
27600							21000	10500	1400	8050	4960	2250	8300
6400							4500	2250	300		1063	2250	3900
4400							3500	1750	220		780	1500	—
5600							5133	2567	280		992	1400	700
6400							5867	2933	320		1134	1600	600
5600							5133	2567	280		992	1400	1100
6800							6233	3117	340		1204	1700	1200
7200							6600	3300	360		1275	1800	2700
42400							36900	18484	2100		7440	11650	10000
6400							4867	2433	320		1134	1600	[illegible]
5600							4200	2100	280		992	1400	—
5600							4000	2000	300		1063	1500	600
5600							3467	1733	260		921	1300	[illegible]
4800							3467	1733	260		921	1300	[illegible]
28000							20001	9999	1450		5031	7100	41[illegible]
[illegible]							No 993	55400	1040	8250	24941	36700	[illegible]

58 868566

Date		aHW Bl	aSW Bl	..	480 Celger	481 Bl Weyerhaeuser	492 Marathon Bl	Westaco	Superior	Broke
10	30	6955			18720					4200
-	31	3745			12960	8658				3600
11	1				18240	18278				8000
	2				17280	17316				7200
	3				17280	17316				7200
	4				13440	1924	11808			5600
	5				17280		17712			7200
		10700			115200	63492	29520			43000
	6				9600		18696	5184	1034	7600
	7						17712	5832	9306	7200
	8						18696	3888	13442	7600
	9						19680		20680	7400
	10				22080		5904		3102	6000
	11									
					31680		80688	14904	47544	35800
	13				26880	18278			1034	7500
	14				3840	32708				5700
	15					36556				5700
	16					36556				6900
	17					29341	5412			6900
	18					31746	10824			8100
	19					30303	10332			6300
					30720	215488	26568		1034	47100
	20				1440	25012	12300			6000
	21				23040		7872			4800
	22				31680		10824			6600
	23				7200	23088	10332			6300
	24					25974	8856			5100
	25									
					63360	74074	50184			28800
		10700			240960	353554	186960	14904	48518	

Bleached Pulps #11 November 1978

Brake	Zolex	Teta	Ansilex	Calc Carb	Mapico Yellow	Sta Loc	Starch	Size	Clay	alum
4200				1530						
3600				11100						
8000					4000			380		1450
7200					3600			360		1373
7200					3600			360		1373
5600					2800			280		1068
7200					3600			360		1373
43000				26400	17600			1740		6637
7600					3800			380		1450
7200					3600			360		1373
7600					3800			380		1450
7400					4000			400		1526
6000					3200			320		1221
35800					18400			1840		7020
7500		4800						420	2400	1602
5700	1900	3700						333	5250	1308
5700	1900	2900						332	6600	1450
6900	1900	2850						333	6650	1450
6900	1600	2100						310	6600	1374
8100		8400						330	3300	1679
6300		6650						315	2800	1602
47100	7300	31400						2373	33600	10465
6000	700	3500						200	4300	1526
4800	800	1850						160	4800	1221
6600	1100	2200						220	6600	1679
6300	1050	2100						210	6300	1602
5100	900	1800						290	5400	1373
28800	4550	11450						1080	27400	7401
54700	11850	42850		26400	36000			7033	61000	31523

868568

November 1978

Date	Ansilex	Tita	Zeolex	Tita Indea	Unesco
10 30		4000	2000		
31		4000	2000		
11 1		4000	2000		
2		4000	2000		
3		4000	2000		
4		7900	4000	110	
5					
		27900	14000	110	
6		4000	2000		
7		4000	1000		
8		4000	2000		
9		4000	2000		
10		2500	1000		
11					
		18500	8000		
13		8000	4000		
14					
15		2000	1000		
16		4000	2000		
17		4000	2000		
18		6000	3000		
19		6000	3000		
		30000	15000		
20		7000	3500		
21		7000	3500		
22		2000	1000		
23		5000	2500		
24		5000	2500		
25					
		26000	13000		
		102400	50000	110	

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SQ 068569

Unbleached Pulps November 1938
#11

Date	Dryden Mill Dry
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050570

November 1978 #10

Date	A Broke Used	B Pulpe	6400 Strage Tank Adj	C Slab Waste	D Stub Rolls	E Rep Pebl	F Gandy Prod	G Strage Tank Adj	A+B+G Total Raw Mat	C+D+E+F Gross Prod	% Eff
10 30	7500	44248	8000	1850	—	2610	37720	-(1600)	50148	42180	841
31	6900	46072	6400	3400	—	5260	32050	+1600	54572	40710	746
11 1	6000	46080	4800	2950	—	4100	42240	+1600	53680	49290	918
2	6800	52624	6400	450	—	—	55120	-(1600)	57824	55570	961
3	6400	49296	6400	2500	—	5060	45250	—	55696	52810	948
4	5200	41822	6400	1900	—	2800	41420	—	47022	46120	981
5	6400	50340	6400	650	2310	1320	49640	—	56740	53920	950
	45200	330482		13700	2310	21150	303440	—	375682	340600	907
6	6000	47950	6400	1900	2100	—	46530	—	53950	50530	937
7	6000	48150	6400	1350	—	5400	41920	—	54150	48270	891
8	5600	45820	6400	4400	—	2710	44340	—	51420	51450	1001
9	5200	43890	6400	3800	—	5160	37450	—	49090	46410	945
10	4800	40740	6400	1950	—	5480	40940	—	45540	48370	1062
11	Down										
	27600	226550		13400	2100	18750	210780	—	254150	245030	964
13	6400	50260	8000	2050	—	3940	37390	-(1600)	55060	43380	788
14	4400	34591	6400	1700	—	2660	25030	+1600	40591	29390	724
15	5600	45090	6400	1050	—	3920	46300	—	50690	51270	1011
16	6400	49768	6400	4200	—	1360	42180	—	56168	47740	850
17	5600	44132	6400	1050	—	—	51410	—	49732	52460	1055
18	6800	53441	6400	900	—	—	53470	—	60241	54370	903
19	7200	58014	6400	900	—	—	53840	—	65214	54740	839
	42400	335296		11850	—	11880	309620	—	377696	333350	88[illegible]
20	6400	48876	4800	2700	—	11520	35300	+1600	56876	49520	871
21	5600	41916	6400	900	—	10770	37090	-(1600)	45916	48760	1060
22	5600	44760	6400	1700	—	2710	47450	—	50360	51860	1030
23	5600	39472	6400	3900	—	2720	38410	—	45072	45030	999
24	4800	39872	6400	3250	—	—	44960	—	44672	48210	1079
25	Down										
	28000	214896		12450	—	27720	203210	—	242896	243380	1002
	143[illegible]	1107224		51400	4410	71500	1027050	—	125[illegible]424	1162360	1[illegible]

November 1978
#11

Ret	Date	Brake Used	Pumps	4950 Storage Tank Ins	Slag Waste	Slag Recycle	Dry Feed	Wood Prod	Storage Tank day	Total Raw Mat	[illegible]	[illegible]
841	1030	4200	49615	6200	4550	—	620	23960	-(1250)	52562	[illegible]	[illegible]
746	31	3600	36463	4950	2300	—	—	38450	+ 1250	41310	40750	[illegible]
918	11 1	8000	40898	4950	—	360	5680	31130	—	48898	[illegible]	[illegible]
961	2	7200	38556	6200	150	—	—	40720	-(1250)	44506	41070	[illegible]
948	3	7200	38556	6200	2550	—	3760	35590	—	45756	41700	716
981	4	5600	30252	6200	1400	—	5490	23770	—	35852	30660	855
950	5	7200	38952	6200	—	—	1800	40410	—	46150	[illegible]	915
907		43000	273292		12300	360	17410	234230	-(1250)	315042	[illegible]	[illegible]
937	6	7600	38694	6200	400	—	—	39520	—	46274	39920	86[illegible]
891	7	7200	36810	6200	950	—	3680	34920	—	44010	37550	877
1001	8	7600	40206	6200	100	—	—	41420	—	47806	41520	864
945	9	7400	44760	4950	750	—	—	42420	+ 1250	53410	43170	808
1062	10	6000	34606	4950	450	—	3490	34050	—	40606	37990	936
	11	Down										
964		35800	195076		2650	—	7170	192330	+1250	232126	202150	871
788	13	7500	53812	6200	4850	2000	1340	31230	-(1250)	60062	39420	656
724	14	5700	47731	6200	4550	2250	7440	26200	—	53431	40440	757
1011	15	5700	48288	6200	700	3140	1320	48400	—	53988	53560	992
850	16	6900	48289	4950	750	2970	—	44560	+ 1250	56439	48280	855
1055	17	6900	45363	6200	200	3080	—	46160	-(1250)	51013	49440	930
903	18	8100	54600	6200	1500	1480	—	42760	—	62700	45740	730
839	19	6300	50400	6200	200	540	4980	46040	—	56700	51760	913
883		47100	348483		12750	15460	15080	285350	-(1250)	394333	358440	833
871	20	6000	47452	6200	1000	—	3750	44720	—	53452	49470	926
1060	21	4800	38522	4950	—	—	6240	31200	+ 1250	44572	37440	840
1030	22	6600	52624	7450	600	—	4920	45280	-(2500)	56724	50800	896
999	23	6300	50280	7450	1650	—	3770	41170	—	56580	46570	823
1079	24	5100	43220	7450	400	—	—	48450	—	48320	48850	1011
	25	Down										
002		28800	232098		3650	—	18680	210820	-(1250)	257648	233150	890
130		154700	1048949		31350	1820	57340	922730	-(2500)	1201147	[illegible]	856

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December 1978
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Trials December 1978
#11

		Superior	Crestbrook	Nicholas	Mapico yellow	Calc cari	Size	alum	Br. ha
11 27									
28									
29									
30									
12 1									
2									
3									
4									
5									
6									
7				11-0990					
8		3042	1560	1386	600		53	229	1200
9									
		3042	1560	1386	600		53	229	1200
11	11-0994	22308				3500			
12									
13									
14									
15									
16									
17									
		22308				3500			
18									
19									
20									
21									
22									
23									
25									
26									
27									
28									
29									
30									
31									
		25350	1560	1386	600	3500	53	229	1200

SB 068574

Bleached Pulps #10 December 1918

Date	AHW Bl	ASW Bl	462 Naheola	477 Celgar	487 Marathon	481 Weyerhauser	507 Bl Superior	507 Domtar	510 Pontiac	Broke
11 27				15741	10714	14430				7200
28						36075				6000
29						33670				5600
30						33670				5600
12 1				8586		12025	13689			5600
2				13356			21294			5600
3				14310			22815			6000
				51993	10714	129870	57798			41600
4				16218			25857			6800
5				14310			22815			6000
6				14310			22815			6000
7				15264			24336			6400
8				17172			27378			7200
9										
				77274			123201			32400
11				14310			22815			6000
12				16218			25857			6800
13				16218			25857			6800
14				15264			24336			6400
15				9540			15210			4000
16				14310				22815		6000
17				14310				22815		6000
				100170			114075	45630		42000
18				17172		25974				7200
19				16218		24531				6800
20				17172		25974				7200
21				10494		15873				4400
22				14310		21645				6000
23				19080		4329	12168		1020	5600
				94446		118326	12168		1020	37200
25										
26			1848	12402			13182		4590	5600
27				11448			12168		6120	4800
28				12402			13182		6630	5200
29				12402			13182		6630	5200
30				10494			11154		5610	4400
31				12402			13182		6630	5200
			1848	71550			76050		36210	30400
			1848	395433	10714	248196	383292	456,30	372,30	1[illegible]

[redacted]

'8

Broke	Rosin Size 8# per gal	Alphasize 8# per gal	Calc Carb	Asbestos	Mapico yellow	Sodium Borate	Ita	Zeolex	Size	Clay	alum	Ultra Cote	H/O Stain
7200							3400	1700	340		1204	4250	—
6000							3000	1500	300		1063	3750	—
5600							2800	1400	280		992	3500	1400
5600							2800	1400	280		992	3500	2100
5600							2800	1400	280		992	3500	4150
5600							2400	1200	280		992	4100	800
6000							2367	1183	300		1063	4500	800
41600							19567	9783	2060		7298	27100	9150
6800							1633	817	340		1204	6400	6
6000							1633	817	300		1063	6000	—
6000							1067	533	300		1063	7950	1600
6400							4267	2133	320		1133	3400	—
7200							6134	3066	360		1275	3200	—
32400							14734	7366	1620		5738	26950	2210
6000							4233	2117	300		1063	2400	4000
6800							6233	3117	340		1204	1700	1000
6800							6233	3117	340		1204	1700	—
6400							5866	2934	320		1134	1600	—
4000							3666	1834	200		709	1000	—
6000							5500	2750	300		1063	1500	1400
6000							7916	2583	300		1063	1500	1600
42000							39647	18452	2100		7440	11400	8000
7200							5433	2717	360		1275	1800	1400
6800							3967	1983	340		1204	1700	1300
7200							4200	2100	360		1275	1800	—
4400							2567	1283	220		779	1650	—
6000							3501	1749	300		1062	2250	—
5600					500		3000	1500	310		1064	2000	—
37200					500		22668	11332	1890		6659	11200	2100
5600					3250				550		921	—	700
4800					3000				350		850	—	600
5200					3250				325		921	—	600
5200					3250				325		921	—	1200
4400					2750				275		779	—	600
5200					3250				325		921	—	700
30400					18750				2150		5314	—	4300
133600					19250		96616	46983	7420		32449	76450	26 ¾.

SD 068576

Kamloops

Date	497 a HW Bl	a SW Bl	507 Domtar	477 Celgar	481 Bl Weyerhaeuser	487 Marathon Bl.	507 Superior	520 Crestbrook	460 Nakusp	510 Pontiac	Broke
11 27					17316	17520					5100
28					13468	13636					3900
29					16354	16558					4800
30					6734	19480	13182				7600
12 1						4870	18252	13520			7200
2							18252	18720			6800
3							18252	18720			7200
					53872	72076	67938	50960			42600
4							16224	11960	4158		6400
5							17238	8840	7854		6800
6							16224	8320	7392		6400
7							18252	9360	8316		7200
8							11154	5720	1386	4080	4000
9											
							79092	44200	29106	4080	30800
11							14196				5700
12	6958						25350				4800
13	3479						20787	10400			6200
14							26874	9880			7200
15			16731				6084	7800			4000
16			25857					8840			6800
17			24336					8320			7400
	10437		66924				93288	45240			42100
18			27378					9360			7200
19				20034				7280			5300
20				19080				20800			6300
21				17172				18720			5400
22				18126				18760			5700
23				15264				16640			5200
			27378	89676				92560			35100
25											
26				14310		2922		12480			6000
27				17172		17532					7200
28				15264		15584					6400
29				18126		18506					7600
30				17172		17532					7200
31				20034		20454					8400
				102078		92530		124800			42800
	10437		94302	191754	53872	164606	240318	245440	29106	4080	193400

Bleached Pulps #11 December 1975

Broke	Zeta	Zeta	Analin	Cal Carb	Myric yellow	Sta Yellow	Starch	Size	Clay	Alum
7100				19400						
3900				15400						
4800	850	1700						298	5100	1297
7600		4800						350	4000	1526
7200	700	2950						315	3600	1570
6800	300	2100			1000			316	3600	1430
7200					3600			315		1373
12600	1850	11550		34800	4600			1593	16300	[illegible]
6400					3200			280		1221
6800					3400			298		1297
6400					3200			281		1221
7200					3600			315		1373
4000					2200			193		839
30800					15600			1367		5951
5700				6300						
4800				15050						
6200		3500		5700				175	1000	709
7200	2700	7200						315	1800	1275
4000	2250	7200						263	1000	1090
6800	2550	8300						298	850	1270
7400	2400	7200						280	800	1134
12100	9900	33400		27050				1331	5450	15684
7200	3300	6600						315	2100	1275
5300	600	1550						246	3750	992
6300				6000		1000				—
5400				4500		700				—
5700				6000						
5200		1200		3900				53	300	213
25100	3900	9350		20400		1700		614	6150	2480
6000	2250	6000						262	1500	1063
7200	2700	6650						315	1800	1275
6400	2400	5600						280	1600	1134
7400	2850	3750						333	1900	1346
7200	2700	2400						315	1800	1275
4400	2150	2100						368	2100	1488
28800	6050	26500						1873	10700	7581
134400	31700	80800		82250	2200	1700		6778	38600	38900

December 1978

Date	Anselex	Tita	Zeolex	Tita India	Unisize
11 27		2000	1000		
28		2000	1000		
29		2000	1000		
30		5000	2500		
12 1		2000	1000		
2		5000	2500		
3		2000	1000		
		20000	10000		
4		2000	1000		
5					
6					
7		2000	1000		
8		2000	1000		
9					
		6000	3000		
11		2000	1000		
12		5000	2500		
13		6000	3000		
14		4000	2000		
15		4000	2000		
16		4000	2000		
17		4000	2000		
		29000	14500		
18		4000	2000		
19		4000	2000		
20		4000	2000		
21		2000	1000		
22		2000	1000		
23		4000	2000		
		20000	10000		
25		—	—		
26		—	—		
27					
28					
29					
30					
31					
		75000	37500		

Da
11
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SB 068579

Unleaded Pumps #11 December 1978

Date
11 27
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12 1
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SA 068580

December 1918 #10

Count up –

Date	A Broke Used	B Pulps	6400 Storage Tank Ins	C Slab Waste	D Stub Rolls	E Rep Prod	F Good Prod	G Storage Tank adj	A+B+G Total Raw Mat	C+D+E+F Gross Prod	% Ret
11 27	7200	50575	6400	1750	—	—	43280	—	57775	45030	77 9
28	6000	44625	8000	500	—	1800	53760	-(1600)	49025	56060	114 4
29	5600	43050	8000	1300	—	4760	49600	—	48650	55660	114 4
30	5600	43650	8000	1100	—	2410	52390	—	49250	55900	113 5
12 1	5600	46380	4800	1000	—	2360	52160	+ 3200	55180	55520	100 6
2	5600	43430	4800	800	—	2380	56260	—	49030	59440	121 0
3	6000	46275	4800	500	—	—	52580	—	52275	53080	101 5
	41600	317985		6950	—	13710	360030	+ 1600	361185	380690	105 4
4	6800	51865	6400	1600	3490	3420	44540	-(1600)	57065	53050	93 0
5	6000	45875	4800	3650	4350	2460	41450	+ 1600	53475	51910	97 1
6	6000	48575	4800	300	4700	—	48290	—	54575	53290	97 7
7	6400	49720	4800	2750	1800	1220	47280	—	56120	53050	94 5
8	7200	57310	6400	600	4550	1360	50220	-(1600)	62910	56730	90 2
9	Down										
	32400	253345		8900	18890	8460	231780	-(1600)	284145	268030	94 3
11	6000	50175	6400	3650	2200	—	35410	—	56175	41260	73 6
12	6800	54465	4800	300	4050	—	53540	+ 1600	62865	57890	92 1
13	6800	53465	4800	850	3450	—	46750	—	60265	51050	84 7
14	6400	50320	4800	800	3030	—	49820	—	56720	53650	94 6
15	4000	31450	4800	900	1770	5490	22420	—	35450	30580	86 3
16	6000	48575	4800	900	3200	—	49290	—	54575	53390	97 8
17	6000	51024	4800	950	2550	1360	49550	—	57024	54410	95 4
	42000	339474		8350	20250	6850	306780	+ 1600	383074	342230	89 3
18	7200	54856	4800	1250	1500	4440	50050	—	62056	57240	92 2
19	6800	50039	6400	650	—	—	56720	-(1600)	55239	57370	103 9
20	7200	51606	6400	1800	1600	—	51500	—	58806	54900	93 4
21	4400	32087	6400	5200	3000	3800	17680	—	36487	29680	81 4
22	6000	43756	6400	2700	1880	—	48190	—	49756	52770	106 1
23	5600	43907	6400	900	500	—	39960	—	49507	41360	83 6
	37200	276250		12500	8480	8240	264100	-(1600)	311850	293320	94 1
25	Holiday										
26	5600	36422	8000	5800	850	11340	18720	-(1600)	40422	36710	90 8
27	4800	33686	6400	7800	900	3140	28460	+ 1600	40086	40300	100 5
28	5200	36389	6400	3950	—	3700	26380	—	41589	34030	81 8
29	5200	36989	6400	650	—	5160	32920	—	42189	38730	91 8
30	4400	30883	6400	4510	1850	3170	30250	—	35283	39780	112 8
31	5200	36489	6400	5840	2700	7010	31270	—	41689	46820	112 3
	30400	210858		28550	6300	33520	168000	—	241258	236370	98 0
	183600	1397912		65250	53920	70780	1330690	—	1581512	1520640	96 2

Date 11. 12

SA 068581

December 1978
#11

% Ret	Date	Broke Used	Pulps	7450 Storage Tank Inv	Slab Waste	Stub Rolls	Ray Prod	Good Prod	Storage Tank adj	Total Raw Mat	Gross Prod	% Ret
77 9	11 27	5100	54248	6200	4550	—	—	25020	+ 1250	60598	29570	48 8
114 4	28	3900	42504	7450	100	—	1800	41160	-(1250)	45154	43060	75 4
114 4	29	4800	40860	6200	3600	—	5990	30500	+ 1250	46910	40090	85 5
113 5	30	7600	48546	6200	400	6860	4660	36010	—	56146	47930	85 4
100 6	12 1	7200	44207	6200	300	6800	—	39030	—	51407	46130	89 7
121 0	2	6800	44287	6200	350	3100	500	36870	—	51087	40820	79 9
101 5	3	7200	40887	6200	1200	—	8750	31910	—	48087	41860	87 1
105 4		42600	315539		10500	16760	21700	240500	+ 1250	357389	289460	80 5
93 0	4	6400	35822	6200	1650	—	—	38800	—	42222	40450	95 8
97 1	5	6800	37630	6200	200	—	—	40490	—	44430	40690	91 6
97 7	6	6400	35417	6200	600	—	—	39210	—	41817	39810	95 2
94 5	7	7200	39843	6200	2850	—	1880	37160	—	47043	41890	89 1
90 2	8	5200	31374	6200	150	—	6170	25560	—	36574	31880	87 2
	9	Down										
94 3		32000	180086		5450	—	8050	181220	—	212086	194720	91 8
73 6	11	5700	46304	6200	10150	—	—	20810	—	52004	30960	59 5
92 1	12	4800	47358	4950	2600	—	3900	25990	+ 1250	53408	32490	60 8
84 7	13	6200	45041	4950	1950	—	—	33440	—	51241	35390	69 1
94 6	14	7200	48766	4950	1950	—	—	39080	—	55966	41030	73 3
86 3	15	6000	41328	4950	4740	—	12440	21560	—	47328	38740	81 9
97 8	16	6800	46695	4950	2200	—	—	33620	—	53495	35820	67 0
95 4	17	7600	43336	4950	700	—	—	41540	—	50936	42240	82 9
89 3		44300	318828		24290	—	16340	216040	+ 1250	364378	256670	70 4
92 2	18	7200	49053	4950	2150	—	5880	27920	—	56253	35950	63 9
103 9	19	5300	33460	4950	9050	1120	3100	24850	—	38760	38120	98 4
93 4	20	6300	46880	6200	600	—	1360	27860	-(1250)	51930	29820	57 4
81 4	21	5400	41092	6200	5650	—	—	28340	—	46492	33990	73 1
106 1	22	5700	43886	6200	7000	—	—	28060	—	49586	35060	70 7
83 6	23	5200	37357	6200	2300	—	3340	25020	—	42557	30660	72 1
94 1		35100	251728		26750	1120	13680	162050	-(1250)	285578	203600	71 3
	25	Holiday										
90 8	26	6000	39724	6200	3050	—	—	31590	—	45724	34640	75 8
100 5	27	7200	46169	6200	2440	—	1850	37700	—	53369	41990	78 7
81 8	28	6400	40728	6200	3900	—	—	36290	—	47128	40190	85 3
91 8	29	7600	45465	6200	1600	—	4530	29430	—	53066	35560	67 0
112 8	30	7200	41919	6200	1150	—	—	41730	—	49119	42880	87 3
12 3	31	8400	48206	6200	600	—	4520	40876	—	56606	45995	81 3
98 0		42800	262211		12740	—	10900	217615	—	305011	241255	79 1
96 2		196800	1328392		79130	17880	70670	1017425	+ 1250	1526442	118[illegible]705	77 7

5A 068582

Bryant

Company Allied Paper Incorporated

Subsidiary of SCM Corporation

Location -

Street: Bryant Division 2030 PortageSt

City: Kalamazoo

County: Kalamazoo

Copied SAS

Products			Quantity
Brand Names or Other (by-products)	1.	Book Paper	148 tons per d
	2.	Commercial printing papers	42 tons per d
	3.	Coated specialties	10 tons per d

Raw Materials Utilized -

1. Kind of pulp (softwood, coniferous, rags, old newspapers, etc.)

   Hard and softwood sulphate pulp and deinked pulp

2. Other:

   a. bleach? Bleach is used in the manufacture of deinked pulp.

   b. fillers? Clay, calcium carbonate and titanium are used in the papermaking process.

   c. finishes? Starch and coatings are used in the papermaking and coating processes.

003381

KA05800413

SA 029323

Company Allied Paper Incorporated

Subsidiary of SCM Corporation

Location -

Street: Monarch Division
Cork Street

City: Kalamazoo

County: Kalamazoo

Products			Quantity
Brand Names or Other (by-products)	1.	Carbon tissue	42 tons/day
	2.		
	3.		

Raw Materials Utilized -

1. Kind of pulp (softwood, coniferous, rags, old newspapers, etc.)

   Coniferous unbleached

2. Other: None

   a. bleach?

   b. fillers?

   c. finishes?

KA05800417

Report on Waste Disposal at Allied Paper Company Kalamazoo, Michigan

Introduction

At the request of Dr. Ward Harrison, President of Allied Paper Company, National Council engineers conducted a survey of water usage and waste disposal at Kalamazoo, Michigan.

The objective of the program were the following:

1. To determine the source and intensity of the major pollutional loads as discharged from the present operation.

2. To determine the performance of the existing waste disposal facilities.

3. To indicate ways and means of reducing waste loads and increasing water use efficiency.

4. To make recommendations concerning a program for additional pollution abatement to coincide with requirements of the Michigan Water Resources Commission.

This report is intended to summarize the results of the survey. In view of the magnitude and complexity of the problem, the report is presented in two sections. Parts 1 and 2 will cover the results of the survey at the Bryant and King Division, respectively.

Part 1 Bryant Division

Description of Mill Processes

The Bryant Divison produces approximately 200 tons per day of specialty papers on five Fourdrinier machines. Furnish

1976 1977

Mill: Monarch Division Location: Kalamazoo, MI

B. Products (continued) **	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
c. Groundwood Specialties			
d. Other			
13. Wood Free Printing, Writing and Related			
a. Uncoated Free Sheet Printing	16 (18)	20 (20)	18 (20)
b. Clay (50% or more Kaolin) Coated Free Printing			
c. Uncoated Writing and Related			
d. Uncoated Solid Bleached Bristols			
e. Clay (50% or more Kaolin) Coated Solid Bleached Bristols			
f. Other Cigarette tipping	9 (7)	15 (13)	11 (8)
14. Cotton Fiber Papers NOT APPLICABLE			
a. Writing and Related			
b. Technical			
c. Other			
15. Thin Papers			
a. Carbonizing	10 (9)	13 (13)	12 (10)
b. Cigarette			
c. Other Crimping	1 (3)	3 (5)	2 (3)
16. Packaging and Industrial Converting NOT APPLICABLE			
a. Unbleached Kraft			
b. Bleached Kraft			
c. Other			

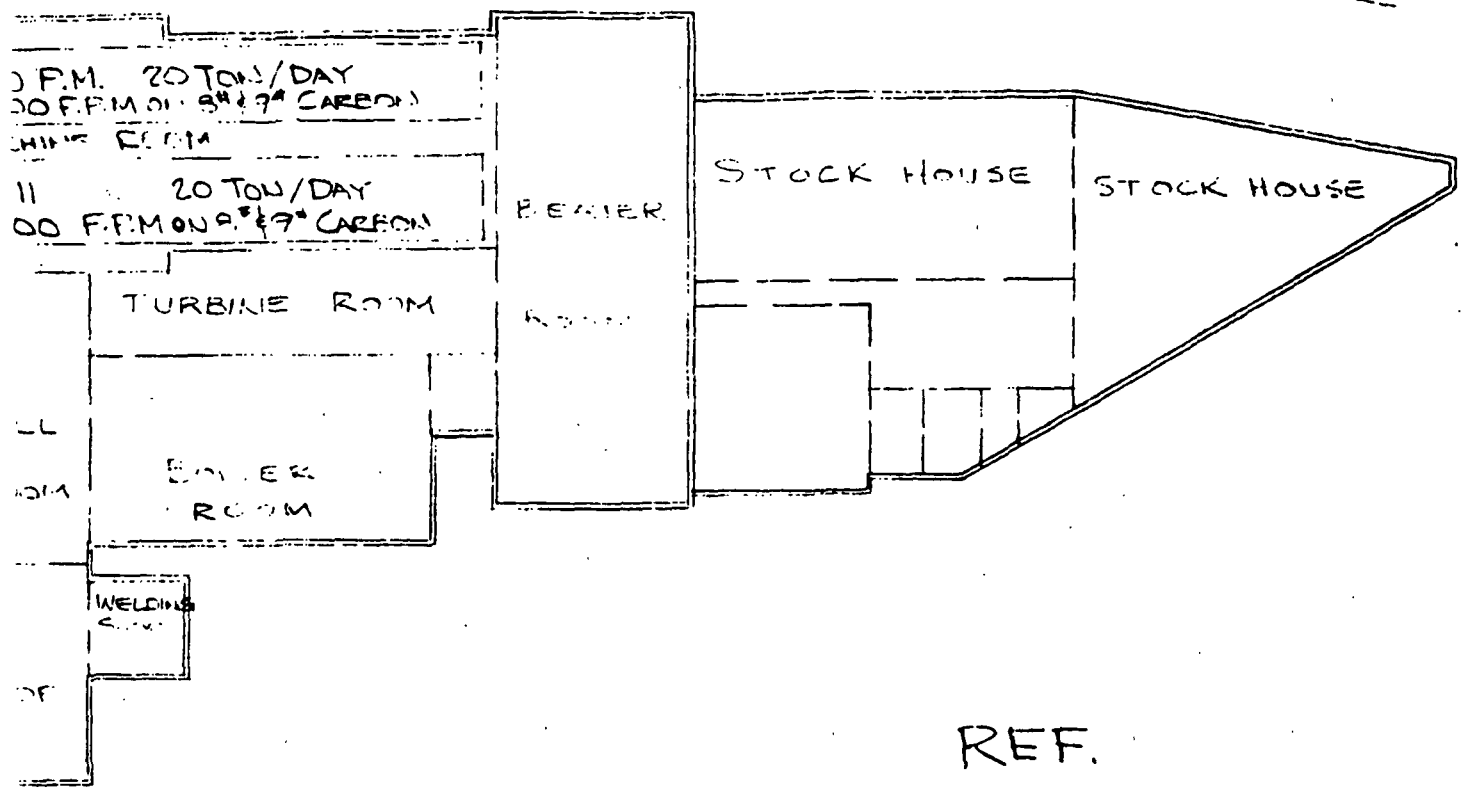
*Measured at the winder or pulp dryer.
**Numbers in ( ) are for period July 1-Oct.1, 1977. Other numbers are for year 1976.

1976
1977

Mill: Bryant Division Location: Kalamazoo, MI

B. Products (continued) **	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
c. Groundwood Specialties			
d. Other			
13. Wood Free Printing, Writing and Related			
a. Uncoated Free Sheet Printing	134(151)	160(180)	145(160)
b. Clay (50% or more Kaolin) Coated Free Printing	87(85)	91(90)	90(87)***
c. Uncoated Writing and Related			
d. Uncoated Solid Bleached Bristols			
e. Clay (50% or more Kaolin) Coated Solid Bleached Bristols			
f. Other			
14. Cotton Fiber Papers NOT APPLICABLE			
a. Writing and Related			
b. Technical			
c. Other			
15. Thin Papers NOT APPLICABLE			
a. Carbonizing			
b. Cigarette			
c. Other			
16. Packaging and Industrial Converting NOT APPLICABLE			
a. Unbleached Kraft			
b. Bleached Kraft			
c. Other			

*Measured at the winder or pulp dryer.
**Numbers in ( ) are for period July 1-Oct. 1, 1977. Other figures are for year of 1976.
***Note this is off machine coaters pr i. t i n. The raw stock is included in (a)



REF.

WAS EM-203

ETTEREX MACHINES (VERTEX CO)				
3	2	1 TON	(2)	#390
2	4	3½ TONS	(2)	#395
1	10	4 TONS	(1)	#580
VERTEX NO.	NO OF WEPS	TONNAGE PER DAY	SHIFTS (PER DAY)	SERIAL NO.

REVISIONS	

REFERENCES	DWG. No.
ALLIED PAPER CORP.	
MILL: KALAMAZOO	
MONARCH	
TITLE: LAYOUT OF CONVERSION EQUIPMENT MONARCH	

SCALE DO NOT	NO.	DAY	YR.	DWG. No.
DRAWN FLR	4	6	70	
TRACED				
CHECKED				E-1245
CHECKED				
APPROVED				

SA 46157

File - Allied Paper Co.
file

Harvey

RECEIVED
SEP 14 1972
WATER MANAGEMENT

Refer to:

NCECO-O Permit No. 71-52-9D
Process No. 71359
Application No. MI 070 0X5 2 710100

12 September 1972

Mr. Urban W. Boresch, Chief
Operations and Maintenance Branch
Construction-Operations Division
Department of the Army
Detroit District, Corps of Engineers
P.O. Box 1027
Detroit, Michigan 48231

Dear Mr. Boresch,

In response to your letter 17 August 1972 we would like to rebut the letter of objection which you received in response to the public notice of our permit application.

In response to page 7 under B, The Condition of the Kalamazoo River and Allied Paper; second paragraph, it is incorrect to assume that the 624 pounds per day reported by us as total suspended solids, 00530, is composed of 100% fibers. In fact, our daily clarifier effluent testing shows no fiber content. We determine fiber content by washing the effluent sample through a 200 mesh screen. The material retained on the screen is the fiber content of the sample.

Page 7, B, General Description, second paragraph. At the time of the permit application, a portion (1.43 mgd) of Bryant Mill process white water went to our deinking mill, also in the Bryant complex, for process water at this operation, and from this deinking mill then to the Bryant clarifier. The effluent from this clarifier then, as now, went to the Kalamazoo City Treatment Plant. Since the effluent from the Bryant clarifier was not discharged to a stream, it was not necessary to file the permit for this discharge. Now that the deinking operation has closed down, a portion of Bryant process water continues to go to the Bryant clarifier, and all the Bryant clarifier effluent still goes to the City of Kalamazoo Treatment Plant. This explanation will also clarify points brought up on page 8 under C - Present Discharge to Outfall 002.

Page 9, the third paragraph starting on this page. There is no lignin in chemical bleached pulp. Furthermore, as we have stated previously, our clarifier effluent doesnot contain any fiber. Therefore, we feel five-day BOD reflects the total oxygen depleting potential of our clarifier effluent, outfall 002.

In answer to paragraph 4, page 9, our weekly Portage Creek survey, taken from April through November of each year, above and below our discharge, has never shown septic conditions. Samples from all stations of the survey show a dissolved oxygen content.

Page 10, D, Observations and Summary, third paragraph. The 30,000 gallons per day of boiler feed as reported under water usage is the amount of makeup that is required for boiler feed water and reflects the losses that are due to exhausts and steam use where the condensate is not collected. No boiler discharge goes to outfall 001. In our description of this discharge, we emphasize the fresh water goes directly from Monarch Mill Pond, an impoundment of Portage Creek, through the condenser tubes and directly through a 20" pipe to its discharge into Portage Creek. No waters other than this condenser cooling water make up the 001 discharge. Any boiler blowdown goes through the regular waste treatment system.

The average BOD discharge to Portage Creek by Allied Paper for the past six months, as reported to the Water Resources Commission in the Monthly Operating Report, is 1133#/day. The Environmental Protection Agency's Recommended Effluent Limitations for the pulp and paper processing industry, as applied to our production process, is six pounds of BOD per ton of product. At an average production of 270 tons per day of product, we are well within these guidelines. Our six month average of 262#/day of suspended solids discharged to Portage Creek is dramatically below the same EPA Recommended Effluent Limitations for suspended solids per ton of product.

Sincerely yours,

E. J. Gilman

E.J. Gilman
Vice President of
Manufacturing

cc: Mr. Manzardo/Mr. Stethers
United States Environmental Protection Agency
1 North Wacker Drive
Chicago, Illinois

Mr. Ralph Purdy
Executive Secretary
Michigan Water Resources Commission
Lansing, Michigan

EJG:bn

Report on Waste Disposal at
Allied Paper Company
Kalamazoo, Michigan

Part II King Division

Description of Mill Processes

The King Division produces approximately 200 tons per day of specialty papers on four Fourdrinier machines. Furnish for the operation consist of 170-180 tons of pulp prepared at the mill by an alkaline cook of waste papers consisting of magazines, books, and ledger. Twenty to thirty tons of purchased unbleached sulphite pulp is also re-pulped and blended with the reclaimed pulp. The digester liquor is recycled for heat recovery and dilution in the centrifliers and Johnson screens from whence it is discharged to the sewer.

All paper machines are equipped with Bird Screens and Sveen-Pederson saveall devices. All Machine shower and Bird Screen shower waters pass through the saveall devices. Saveall effluents are discharged to storage tanks for re-use, except when colored papers are being produced. White Water tank overflows and colored waters are discharged through sewers directly to a primary treatment facility and thence to Kalamazoo River, the receiving stream.

Survey Procedures

To accomplish the objectives previously cited in Part I, a three day survey was conducted. The survey consisted of collecting 8-hr. composite samples at major mill waste streams. In addition to these samples, grab samples were collected at individual waste sources throughout the mill. Location of all sampling points are presented in Figure 1. All samples were analyzed for BOD, and

1/31/54

Allied Photo Paper Unit To Expand

Advanced New Plant To Go Up at Once.

(Continued from Page 1)

gree that even a special mortar will be used in laying the tile which will prevent any possibility of dust or of impure air seeping into the structure.

The new unit will contain a coating machine of unique and highly specialized design suitable for the production of a wide variety of photographic specialities.

Production facilities also will include a new super-calender stack for applying the high finish required for glossy prints, and for production of "A-print-a-minute" cameras. A rewinder will be installed especially suited to the high degree of inspection and cleanliness of the products involved.

"Demand for increased production and, in particular, further efforts to improve cleanliness and purity have resulted in the decision to expand, modernize, and improve production facilities," the company announced

"Cleanliness is a prime requisite in the production of photographic paper, even the air must be filtered and purified," a company official explained "This is done with equipment which would even remove cigarette smoke from air as it passes through Walls and floors are washed daily with purified water, and all men in the photo plant wear special white clothing"

STARTED IN 1939

The Allied Paper Mills has produced baryta coated photographic papers at the King Mill since 1939 At that time there was only one other domestic producer, although a dozen mills had attempted its production without success.

When production was started at the local plant about half of the domestic producers of base stock photographic paper were entirely dependent upon European mills for their supply of baryta coated photobase prior to World War II. German submarines almost completely cut off the foreign supply in 1940, and some of the sensitizing plants found themselves in about the same position as dyestuff users at the time of World War II.

The local project was recognized by the government as such a vital factor in the overall defense effort that all personnel connected with it were deferred from military service.

Allied entered the field of photographic reproduction paper just prior to World War II as part of a parallel and joint development with the Lee Paper Company at Vicksburg. The Lee Paper Company, with exceptionally fine facilities for the production of fine photographically pure papers, developed a base stock which the Allied Mill coats for sensitizers located in this country.

Aided by the unusual demand and with some assistance from the photo sensitizers themselves, the technical staffs of Allied and Lee paper mills cooperated in the development of various types of photographic papers. Some of the photographic papers are directly sensitized on the Le Paper Company base and others are first coated at the Allied mill with a mixture of extremely pure gelatin and a pure white pigment chemical known as barium sulfate or "baryta."

AN EARLY STUMBLING BLOCK

One of the principal stumbling blocks first encountered had to do with the purity of the baryta pigment. It was found that no satisfactory quantities of acceptable purity were available in this country.

As a result of this situation, the Allied Mills had to erect a chemical plant for the production of photographically pure baryta. The first productive unit involved bringing together clear purified solutions of barium chloride and sodium sulfate. A fine white precipitate resulted which was then washed and settled over a week's period in order to purify it.

This operation was slow and production limited. Subsequently, the cleaning and washing was changed over to a process involving a centrifuge similar to a huge cream separator such as might be used in dairies. This accomplished in minutes the same process that previously took hours.

Formulations developed by Allied technicians are reported to have resulted in many photo products equal to or superior to similar products produced domestically and abroad.

The Photographic Division is in direct charge of Donald Huyser, a 1951 graduate of the course in paper technology at Western Michigan College. Huyser also is in charge of development projects in the photographic field.

Since its inception, the enterprise has been under the direction of the technical division headed by W. A. Kirkpatrick, vice president and technical director.

H. B. Johnston, vice president and chief engineer of the Allied Paper Mills, has been in charge of the design of the new plant and its equipment, and has been assisted by Donald Falvey of the engineering staff.

The building has been designed by Louis C. Kingscott and Associates, local architectural and engineering firm. The Kalamazoo firm of Miller-Davis Company has been awarded the general contract to construct the building The air conditioning is being handled by the J. O. Ross Engineering Company of Chicago.

Allied Photo Paper Unit To Expand

Advanced New Plant To Go Up at Once.

The Allied Paper Mills announce an expansion program at its King division mill in Lake Street which will make Kalamazoo the center of the most advanced plant in the world for production of base stock photographic paper.

The new unit will be a 45 by 112 foot three-story building to house the Photo Paper Division located at the King division.

An Allied official said construction will begin "at once," with the building to be completed and production in the new unit to start by "the middle of the summer." The cost of the entire project was not announced, though highly specialized features of the unit indicate it will be a significant expansion in the growing Kalamazoo industrial scene.

ONE OF TWO SUPPLIERS

The new building will be located at the north end of the King mill. Two floors will house production facilities for the highly specialized production of base stock photographic paper, and the third floor will house the engineering offices.

This will expand the development of the Photo Paper Division at the King mill underway since 1939 in a joint project with the Lee Paper Company, Vicksburg, which has made the local plant one of the only two prime source suppliers of "baryta" coated photographic base stock in the entire Western Hemisphere. The only other prime producer in this country is the Eastman Kodak Company.

The new building will have unique features setting it apart from the usual industrial plant.

The structure will be so constructed that outside air cannot be admitted until it has been so thoroughly filtered that even cigarette smoke would be removed. Temperature and humidity will as well be rigidly controlled.

COMPLETELY AIR TIGHT

The building itself will be completely air tight, much of the materials handling will be by automatic devices, and personnel will be provided with segregated facilities for entering and leaving the plant.

An executive of the company who has participated in planning for the new project said the air into the plant will be filtered to such a fine degree to remove any traces of impurities that "even radioactive atomic dust" will be removed.

This plays a vital part of the production since only the slightest trace of radioactivity would ruin the base stock photographic paper for sensitizing into photographic film.

As it is, production in present facilities is now continuously monitored with a Geiger counter to guard against radioactivity. Company officials said this is a precautionary measure and radioactivity has not interfered with production at the local plant

The company executive said without reservations the plant unit to be constructed "will be second to none in the world" for the specialized production of base stock photographic paper.

BLOCK, TILE CONSTRUCTION

The building will be constructed of glass block and smooth tile for both the outside and inside walls. The air-tight construction will be carried out to such a minute de-

SA 045770

1 IN RE: ENVIRONMENTAL DECLARATORY JUDGMENT ACTIONS
DOCKET NO. UNN L 8573-89
2
3
4
5

6 H. M. HOLDINGS, INC., THE GLIDDEN COMPANY & SMITH	) SUPERIOR COURT OF NEW JERSEY) LAW DIVISION: UNION COUNTY
7 CORONA CORPORATION,	) DOCKET NO. L-96187-87
8 Plaintiffs,	)
9 -v-	) Civil Action
10 LUMBERMENS MUTUAL CASUALTY COMPANY, et al.,	) DEPOSITION OF
11	) JAMES L. CURTIS
12 Defendants.	)

13
14
15
16 The deposition of JAMES L. CURTIS, taken before Stephen D.
17 Gerger, CSR-2624, Certified Shorthand Reporter and Notary
18 Public, at Gerger-Moretti Reporting, Inc., 520 Comerica
19 Building, Kalamazoo, Michigan, on May 8, 1992,
20 commencing at 9:05 a.m., pursuant to notice.
21
22
23
24
25

1 APPEARANCES

2 On Behalf of the Plaintiffs:

3 MR. BENNET G. KELLEY
Howrey & Simon
4 1730 Pennsylvania Avenue, N.W.
Washington, D.C. 20006-4793
5

6

7 On Behalf of the Defendants:

8 MR. DANIEL CUNNINGHAM
Tressler, Soderstrom, Maloney & Priess
9 200 West Adams, Suite 3000
Chicago, Illinois 60606
10
and
11
MR. MICHAEL S. OLSAN
12 Connell, Foley & Geiser
85 Livingston Avenue
13 Roseland, New Jersey 07068

14 and

15 MR. KARL V. VASILOFF
Zelle & Larson
16 University Office Park 111
95 Sawyer Road, Suite 500
17 Waltham, Massachusetts 02154

18

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23

EXHIBITS

24 None marked.

25

1 PROCEEDINGS
2 JAMES L. CURTIS,
3 being first duly sworn, was examined and testified as
4 follows:
5 EXAMINATION
6 BY MR. CUNNINGHAM:
7 Q Mr. Curtis, would you please state your full name and
8 spell your last name for the record?
9 A James L. Curtis. C-U-R-T-I-S.
10 Q Mr. Curtis, my name is Dan Cunningham. I represent
11 two insurance companies, the American Motorists
12 Insurance Company and the Lumbermens Mutual Casualty
13 Company in a lawsuit involving Allied Paper. Now,
14 throughout the course of this morning we are going to
15 be asking you questions about your observations and
16 experiences while working at Allied Paper, and we
17 simply ask that you answer the questions as
18 truthfully and as fully as you can. Do you
19 understand?
20 A Yes.
21 Q Also, Mr. Curtis, this is an oral deposition, which
22 means that you have to respond to my questions
23 orally. You can't simply nod your head or make a
24 gesture with your hand because we can't record that.
25 A Okay.

1 A Okay. I don't recollect if it was at this time, no.
2 Q Do you know if they ever manufactured anything like
3 that?
4 A There was --
5 MR. KELLEY: Objection, no foundation.
6 A There was a time when a carbon paper was produced
7 within the company, yes.
8 Q (By Mr. Cunningham) Can you describe that carbon
9 paper for us?
10 MR. KELLEY: Objection. Same objection.
11 A It was a thin lightweight sheet that would be natural
12 in color, about the color of the cookies there, and
13 then it would be coated with a material which would
14 release from the paper when it was used as a typing
15 secondary sheet.
16 Q (By Mr. Cunningham) At which mill did they
17 manufacture this type of paper?
18 A At the Monarch Mill.
19 Q Can you estimate or approximate when they began
20 manufacturing this?
21 A I can't.
22 Q Now, they would have a sheet of paper which you
23 described as natural color?
24 A Uh-huh.
25 Q And that's a light brown color?

1 A Yes, light brown, that's good.
2 Q And then they would coat that paper with a substance,
3 is that correct?
4 A That's correct.
5 Q Do you know what that substance was?
6 A No, I don't.
7 Q Do you know what the color of that substance was, if
8 it had a color?
9 A It was a dark color. It was either a black or a
10 blue.
11 Q So the final product would appear black or blue, is
12 this correct?
13 A On one side. And on the opposite side it would have
14 the natural color.
15 Q I see. Did they do the coating of this paper at the
16 Monarch Mill as well?
17 A Yes.
18 Q Do you recall the names of any of the customers that
19 purchased this type of paper?
20 A Allied/Egry Business Systems is the only one I can
21 remember.
22 Q Can you explain the relationship between that company
23 and the Allied company in Kalamazoo?
24 MR. KELLEY: Objection, no foundation. You
25 haven't established there is a relationship.

1 Q (By Mr. Cunningham) If there is one.
2 A There was -- I believe that we were owned by the same
3 organization.
4 Q Okay. Do you know where the Allied/Egry Business
5 Systems is located?
6 MR. KELLEY: Excuse me. Are you saying
7 Agri or Egry?
8 THE WITNESS: Egry, E-G-R-Y, Dayton, Ohio.
9 Q (By Mr. Cunningham) Mr. Curtis, do you know what
10 carbonless copy paper is?
11 A Basically what I just -- carbonless?
12 Q Carbonless.
13 A Only in generic terms.
14 Q Did they refer to the product that we were just
15 talking about as carbonless copy paper?
16 A No. No. This would be carbon.
17 Q Did Allied have a specific name for this type of
18 paper within the industry?
19 MR. KELLEY: Objection. Which type of
20 paper are you talking about?
21 MR. CUNNINGHAM: The paper that was
22 manufactured at Monarch Mill.
23 A That carbon paper, as I'm recalling, was known as
24 one-time carbon.
25 Q Did they continue to manufacture that paper until the

#10 October 1979

Date	Today mf	Today Total	To Date mf	To Date Total
10 1	41500	41500	41500	41500
2	39490	39490	80990	80990
3	35600	35600	116590	116590
4	36610	36610	153200	153200
5	33660	33660	186860	186860
6	45720	45720	232580	232580
7	52495	52495	285075	285075
8	52160	52160	337235	337235
9	48540	48540	385775	385775
10	17920	17920	403695	403695
11	48420	48420	452115	452115
12	34600	34600	486715	486715
13	50080	50080	536795	536795
14	50160	50160	586955	586955
15	51200	51200	638155	638155
16	42910	42910	681065	681065
17	26730	26730	707795	707795
18	49370	49370	757165	757165
19	53020	53020	810185	810185
20	52880	52880	863065	863065
21	47200	47200	910265	910265
22	52190	52190	962455	962455
23	48600	48600	1011055	1011055
24	[illegible]	41690	1052745	105[illegible]
25	46220	46220	1098965	1098965
26	42685	42685	1141650	1141650
27	53210	53210	1194860	1194860
28	54670	54670	1249530	1249530

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#11 October 1979

Date	Today mf	Today Total	To Date mf	To Date Total
10 / 1	38020	38020	38020	38020
2	33995	33995	72015	72015
3	39640	39640	111655	111655
4	37295	37295	148950	148950
5	37740	37740	186690	186690
6	52015	52015	238705	238705
7	60265	60265	298970	298970
8	59135	59135	358105	358105
9	58870	58870	416975	416975
10	60105	60105	477080	477080
11	54335	54335	531415	531415
12	37675	37675	569090	569090
13	48400	48400	617490	617490
14	49445	49445	666935	666935
15	45050	45050	711985	711985
16	42210	42210	754195	754195
17	30640	30640	784835	784835
18	23960	23960	808795	808795
19	19720	19720	828515	828515
20	26520	26520	855035	855035
21	38805	38805	893840	893840
22	41920	41920	935760	935760
23	34160	34160	969920	969920
24	32265	32265	1002185	1002185
25	37770	37770	1039955	1039955
26	45490	45490	1085445	1085445
27	34995	34995	1120440	1120440
28	48170	48170	1168610	1168610

5A 067484

Totals #10-#11 Machines October 1979

Date	Today mf	Today Total	To Date mf	To Date Total
10 1	79520	79520	79520	79520
2	73485	73485	153005	153005
3	75240	75240	228245	228245
4	73905	73905	302150	302150
5	71400	71400	373550	373550
6	97735	97735	471285	471285
7	112760	112760	584045	584045
8	111295	111295	695340	695340
9	107410	107410	802750	802750
10	78025	78025	880775	880775
11	102755	102755	983530	983530
12	72275	72275	1055805	1055805
13	98480	98480	1154285	1154285
14	99605	99605	1253890	1253890
15	96250	96250	1350140	1350140
16	85120	85120	1435260	1435260
17	57370	57370	1492630	1492630
18	73330	73330	1565960	1565960
19	72740	72740	1638700	1638700
20	79400	79400	1718100	1718100
21	86005	86005	1804105	1804105
22	94110	94110	1898215	1898215
23	82760	82760	1980975	1980975
24	73955	73955	2054930	2054930
25	83990	83990	2138920	2138920
26	88175	88175	2227095	2227095
27	88205	88205	2315300	2315300
28	102840	102840	2418140	2418140

28

SA 867485

#10 November 1979

Date	Today Mf	Today Total	To Date Mf	To Date Total
10 29	37920	37920	37920	37920
30	41190	41190	79110	79110
31	53490	53490	132600	132600
11 1	47420	47420	180020	180020
2	40190	40190	220210	220210
3	45115	45115	265325	265325
4	49985	49985	315310	315310
5	51670	51670	366980	366980
6	47430	47430	414410	414410
7	19890	19890	434300	434300
8	36990	36990	471290	471290
9	42595	42595	513885	513885
10	44140	44140	558025	558025
11	48290	48290	606315	606315
12	38780	38780	645095	645095
13	34535	34535	679630	679630
14	55870	55870	735500	735500
15	55470	55470	790970	790970
16	51960	51960	842930	842930
17	55060	55060	897990	897990
18	56180	56180	954170	954170
19	48140	48140	1002310	1002310
20	57640	57640	1059950	1059950
21	47600	47600	1107550	1107550
22	56380	56380	1163930	1163930
23	53000	53000	1216930	1216930
24	52100	52100	1269030	1269030
25	51210	51210	1320240	1320240

28

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#11 November 1979

Date	Today Mf	Today Total	To Date Mf	To Date Total	Trial
1029	33185	33185	33185	33185	[illegible]
30	5960	5960	39145	39145	26500
31	21330	21330	60475	60475	14950
111	40190	40190	100665	100665	
2	40380	40380	141045	141045	
3	41880	41880	182925	182925	
4	42710	42710	225635	225635	
5	40830	40830	266465	266465	
6	37690	37690	304155	304155	
7	12450	12450	316605	316605	20070
8	39910	39910	356515	356515	
9	33300	33300	389815	389815	
10	43260	43260	433075	433075	
11	43975	43975	477050	477050	
12	27385	27385	504435	504435	
13	43470	43470	547905	547905	
14	41805	41805	589710	589710	
15	39520	39520	629230	629230	
16	10270	10270	639500	639500	
17	38860	38860	678360	678360	
18	45115	45115	723475	723475	
19	40050	40050	763525	763525	
20	39225	39225	802750	802750	
21	37230	37230	839980	839980	
22	44000	44000	883980	883980	
23	43655	43655	927635	927635	
24	48515	48515	976150	976150	
25	48235	48235	1024385	1024385	

28

SA 067487

Totals #10 - #11 Machines

November 1979

Date	Today my	Today Total	To Date my	To Date Total
10 29	71105	71105	71105	71105
30	47150	47150	118255	118255
31	74820	74820	193075	193075
11 1	87610	87610	280685	280685
2	80570	80570	361255	361255
3	86995	86995	448250	448250
4	92695	92695	540945	540945
5	92500	92500	633445	633445
6	85120	85120	718565	718565
7	32340	32340	750905	750905
8	76900	76900	827805	827805
9	75895	75895	903700	903700
10	87400	87400	991100	991100
11	92265	92265	1083365	1083365
12	66165	66165	1149530	1149530
13	78005	78005	1227535	1227535
14	97675	97675	1325210	1325210
15	94990	94990	1420200	1420200
16	62230	62230	1482430	1482430
17	93920	93920	1576350	1576350
18	101295	101295	1677645	1677645
19	88190	88190	1765835	1765835
20	96865	96865	1862700	1862700
21	84830	84830	1947530	1947530
22	100380	100380	2047910	2047910
23	96655	96655	2144565	2144565
24	100615	100615	2245180	2245180
25	99445	99445	2344625	2344625

28

SA 867488

#10 December 1979

Date	Today mf	Today Total	To Date mf	To Date Total
11 26	37080	37080	37080	37080
27	27060	27060	64140	64140
28	51340	51340	115480	115480
29	50920	50920	166400	166400
30	53920	53920	220320	220320
12 1	41810	41810	262130	262130
2	48100	48100	310230	310230
3	50720	50720	360950	360950
4	48400	48400	409350	409350
5	41550	41550	450900	450900
6	45920	45920	496820	496820
7	43750	43750	540570	540570
8	29290	29290	569860	569860
9	38480	38480	608340	608340
10	21230	21230	629570	629570
11	49350	49350	678920	678920
12	37730	37730	716650	716650
13	32930	32930	749580	749580
14	46665	46665	796245	796245
15	20380	20380	816625	816625
16	39360	39360	855985	855985
17	44060	44060	900045	900045
18	31320	31320	931365	931365
19	38850	38850	970215	970215
20	41860	41860	1012075	1012075
21	33140	33140	1045215	1045215
22	41680	41680	1086895	1086895
23	43200	43200	1130095	1130095
24	Holiday			
25	"			
26	"			
27	20460	20460	1150555	1150555
28	50300	50300	1200855	1200855
29	51500	51500	1252355	1252355
30	49100	49100	1301455	1301455

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SA 067489

#11 December 1979

Date	Today My	Today Total	To Date My	To Date Total
11 26	37935	37935	37935	37935
27	54195	54195	92130	92130
28	42670	42670	134800	134800
29	44435	44435	179235	179235
30	43655	43655	222890	222890
12 1	37965	37965	260855	260855
2	52530	52530	313385	313385
3	43335	43335	356720	356720
4	48595	48595	405315	405315
5	43630	43630	448945	448945
6	25180	25180	474125	474125
7	40500	40500	514625	514625
8	42870	42870	557495	557495
9	27765	27765	585260	585260
10	—	—	585260	585260
11	19800	19800	605060	605060
12	—	—	605060	605060
13	—	—	605060	605060
14	—	—	605060	605060
15	11830	11830	616890	616890
16	42140	42140	659030	659030
17	36030	36030	695060	695060
18	46840	46840	741900	741900
19	42630	42630	784530	784530
20	45130	45130	829660	829660
21	36925	36925	866585	866585
22	38780	38780	905365	905365
23	18290	18290	923655	923655
24	Holiday			
25	"			
26	"			
27	14120	14120	937775	937775
28	33200	33200	970975	970975
29	38825	38825	1009800	1009800
30	40920	40920	1050720	1050720

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SA 067490

Totals #10 - #11 Machines

Date	Today My	Today Total	To Date My	To Date Total
11 26	75015	75015	75015	75015
27	81255	81255	156270	156270
28	94010	94010	250280	250280
29	95355	95355	345635	345635
30	97575	97575	443210	443210
12 1	79775	79775	522985	522985
2	100630	100630	623615	623615
3	94055	94055	717670	717670
4	96995	96995	814665	814665
5	85180	85180	899845	899845
6	71100	71100	970945	970945
7	84250	84250	1055195	1055195
8	72160	72160	1127355	1127355
9	66245	66245	1193600	1193600
10	21230	21230	1214830	1214830
11	69150	69150	1283980	1283980
12	37730	37730	1321710	1321710
13	32930	32930	1354640	1354640
14	46665	46665	1401305	1401305
15	32210	32210	1433515	1433515
16	81500	81500	1515015	1515015
17	80090	80090	1595105	1595105
18	78160	78160	1673265	1673265
19	81480	81480	1754745	1754745
20	86990	86990	1841735	1841735
21	70065	70065	1911800	1911800
22	80460	80460	1992260	1992260
23	61490	61490	2053750	2053750
24	[illegible]			
25	"			
26	"			
27	34580	34580	2088330	2088330
28	83500	83500	2171830	2171830
29	90325	90325	2262155	2262155
30	90020	90020	2352175	2352175

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SA 067491

#10 January 1980

Date	Today mf	Today Total	To Date mf	To Date Total
12 31	46760	46760	46760	46760
1 1	54920	54920	101680	101680
2	37805	37805	139485	139485
3	52380	52380	191865	191865
4	51580	51580	243445	243445
5	51820	51820	295265	295265
6	51670	51670	346935	346935
7	43970	43970	390905	390905
8	34900	34900	425805	425805
9	38560	38560	464365	464365
10	39985	39985	504350	504350
11	39345	39345	543695	543695
12	53835	53835	597530	597530
13	55980	55980	653510	653510
14	54640	54640	708150	708150
15	32280	32280	740430	740430
16	43670	43670	784100	784100
17	46645	46645	830745	830745
18	57255	57255	888000	888000
19	63420	63420	951420	951420
20	60245	60245	1011665	1011665
21	20930	20930	1032595	1032595
22	49655	49655	1082250	1082250
23	54110	54110	1136360	1136360
24	50540	50540	1186900	1186900
25	44540	44540	1231440	1231440
26	42880	42880	1274320	1274320
27	45440	45440	1319760	1319760

28

SA 067492

#11 January 1980

Date	Today mcf	Today Total	To Date mcf	To Date Total
12 31	35840	35840	35840	35840
1 1	35185	35185	71025	71025
2	26935	26935	97960	97960
3	15540	15540	113500	113500
4	26245	26245	139745	139745
5	52365	52365	192110	192110
6	44265	44265	236375	236375
7	45270	45270	281645	281645
8	43225	43225	324870	324870
9	29735	29735	354605	354605
10	13910	13910	368515	368515
11	21380	21380	389895	389895
12	24720	24720	414615	414615
13	20160	20160	434775	434775
14	25640	25640	460415	460415
15	38120	38120	498535	498535
16	—	—	498535	498535
17	30010	30010	528545	528545
18	40230	40230	568775	568775
19	37065	37065	605840	605840
20	25440	25440	631280	631280
21	29625	29625	660905	660905
22	36400	36400	697305	697305
23	37490	37490	734795	734795
24	31890	31890	766685	766685
25	—	—	766685	766685
26	18830	18830	785515	785515
27	25990	25990	811505	811505
28				

SA 867493

Totals #10 - #11 Machines

Date	Today mf	Today Total	To Date mf	To Date Total
12 31	82600	82600	82600	82600
1 1	90105	90105	172705	172705
2	64740	64740	237445	237445
3	67920	67920	305365	305365
4	77825	77825	383190	383190
5	104185	104185	487375	487375
6	95935	95935	583310	583310
7	89240	89240	672550	672550
8	78125	78125	750675	750675
9	68295	68295	818970	818970
10	53895	53895	872865	872865
11	60725	60725	933590	933590
12	78555	78555	1012145	1012145
13	76140	76140	1088285	1088285
14	80280	80280	1168565	1168565
15	70400	70400	1238965	1238965
16	43670	43670	1282635	1282635
17	76655	76655	1359290	1359290
18	97485	97485	1456775	1456775
19	100485	100485	1557260	1557260
20	85685	85685	1642945	1642945
21	50555	50555	1693500	1693500
22	86055	86055	1779555	1779555
23	91600	91600	1871155	1871155
24	82430	82430	1953585	1953585
25	44540	44540	1998125	1998125
26	61710	61710	2059835	2059835
27	71430	71430	2131265	2131265

25

SA 067494

#10 February 1980

Date	Today mf	Today Total	To Date mf	To Date Total
1 28	42740	42740	42740	42740
29	31690	31690	74430	74430
30	Down - No Orders		74430	74430
31	"		74430	74430
2 1	"		74430	74430
2	"		74430	74430
3	"		74430	74430
4	"		74430	74430
5	"		74430	74430
6	34310	34310	108740	108740
7	41070	41070	149810	149810
8	45715	45715	195525	195525
9	45300	45300	240825	240825
10	45480	45480	286305	286305
11	37410	37410	323715	323715
12	42465	42465	366180	366180
13	27685	27685	393865	393865
14	Down		393865	393865
15	"			
16	"			
17	"			
18	"			
19	"			
20	"			
21	"			
22	"			
23	"			
24	"		393865	393865

10

SA 867495

#11 February 1980

Date	Today My	Today Total	To Date My	To Date Total
28	24100	24100	24100	24100
29	27700	27700	51800	51800
30	Down - Tie Down		51800	51800
31	"		51800	51800
1	"		51800	51800
2	"		51800	51800
3	"		51800	51800
4			51800	51800
5	"		51800	51800
6	19140	19140	70940	70940
7	34980	34980	105920	105920
8	32555	32555	138475	138475
9	36160	36160	174635	174635
10	43645	43645	218280	218280
11	14890	14890	233170	233170
12	41260	41260	274430	274430
13	31940	31940	306370	306370
14	Down		306370	306370
15	"			
16	"			
17	"			
18	"			
19	"			
20	"			
21	"			
22	"			
23	"			
24	"		306370	306370

10

SA 067496

Totals #10 - #11 Machines

Date	Today my	Today Total	To Date my	To Date Total
28	66840	66840	66840	66840
29	59390	59390	126230	126230
30	Drum - No Orders		126230	126230
31	"		126230	126230
21	"		126230	126230
2	"		126230	126230
3	"		126230	126230
4	"		126230	126230
5	"		126230	126230
6	53450	53450	179680	179680
7	76050	76050	255730	255730
8	78270	78270	334000	334000
9	81460	81460	415460	415460
10	89125	89125	504585	504585
11	52300	52300	556885	556885
12	83725	83725	640610	640610
13	59625	59625	700235	700235
14	Drum		700235	700235
15	"			
16	"			
17	"			
18	"			
19	"			
20	"			
21	"			
22	"			
23	"			
24	"		700235	700235

10

SB 067497

#10 March 1980

Date	Today my	Today Total	To Date my	To Date Total
2 25	30800	30800	30800	30800
26	45690	45690	76490	76490
27	47550	47550	124040	124040
28	46320	46320	170360	170360
29	41020	41020	211380	211380
31	Down		211380	211380
3	29820	29820	241200	241200
4	46510	46510	287710	287710
5	46060	46060	333770	333770
6	36760	36760	370530	370530
7	44250	44250	414780	414780
8 9	Down			
10	32600	32600	447380	447380
11	37100	37100	484480	484480
12	44920	44920	529400	529400
13	45120	45120	574520	574520
14	39420	39420	613940	613940
15	Down			
17	38760	38760	652700	652700
18	42930	42930	695630	695630
19	46630	46630	742260	742260
20	37610	37610	779870	779870
21	40820	40820	820690	820690
22	Down			
24	Total		820690	820690
25	23605	23605	844295	844295
26	44280	44280	888575	888575
27	33950	33950	922525	922525
28	52260	52260	974785	974785
29	24920	24920	999705	999705
30	45040	45040	1044745	1044745

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SD 867498

#11 March 1980

Date	Today mf	Today Total	To Date mf	To Date Total
225	16110	16110	16110	16110
26	23730	23730	39840	39840
27	38270	38270	78110	78110
28	40090	40090	118200	118200
29	39290	39290	157490	157490
31	Down		157490	157490
3	35920	35920	193410	193410
4	47955	47955	241365	241365
5	53735	53735	295100	295100
6	50855	50855	345955	345955
7	43260	43260	389215	389215
8	Down			
9				
10	33120	33120	422335	422335
11	46990	46990	469325	469325
12	43280	43280	512605	512605
13	46000	46000	558605	558605
14	35300	35300	593905	593905
15	Down			
17	36795	36795	630700	630700
18	36330	36330	667030	667030
19	32370	32370	699400	699400
20	41990	41990	741390	741390
21	32950	32950	774340	774340
22	Down			
24	33795	33795	808135	808135
25	42120	42120	850255	850255
26	37915	37915	888170	888170
27	38745	38745	926915	926915
28	37440	37440	964355	964355
29	39155	39155	1003510	1003510
30	33330	33330	1036840	1036840
27				

SA 067499

Totals #10 - #11 Machines

Date	Today mf	Today Total	To Date mf	To Date Total
2 25	46910	46910	46910	46910
26	69420	69420	116330	116330
27	85820	85820	202150	202150
28	86410	86410	288560	288560
29	80310	80310	368870	368870
3 1	Down		368870	368870
3	65740	65740	434610	434610
4	94465	94465	529075	529075
5	99795	99795	628870	628870
6	87615	87615	716485	716485
7	87510	87510	803995	803995
8	Down			
9	"			
10	65720	65720	869715	869715
11	84090	84090	953805	953805
12	88200	88200	1042005	1042005
13	91120	91120	1133125	1133125
14	74720	74720	1207845	1207845
15	Down			
17	75555	75555	1283400	1283400
18	79260	79260	1362660	1362660
19	79000	79000	1441660	1441660
20	79600	79600	1521260	1521260
21	73770	73770	1595030	1595030
22	Down			
24	33795	33795	1628825	1628825
25	65725	65725	1694550	1694550
26	82195	82195	1776745	1776745
27	72695	72695	1849440	1849440
28	89700	89700	1939140	1939140
29	64075	64075	2003215	2003215
30	78370	78370	2081585	2081585

27

SA 067500

#10 April 1980

Date	Today mf	Today Total	To Date mf	To Date Total
3 31	46140	46140	46140	46140
4 1	50480	50480	96620	96620
2	50740	50740	147360	147360
3	47580	47580	194940	194940
4	40080	40080	235020	235020
5	Down			
6	"			
7	36540	36540	271560	271560
8	45610	45610	317170	317170
9	52860	52860	370030	370030
10	53270	53270	423290	423290
11	48610	48610	471900	471900
12	49330	49330	521230	521230
13	48655	48655	569885	569885
14	42545	42545	612430	612430
15	50230	50230	662660	662660
16	47960	47960	710620	710620
17	50540	50540	761160	761160
18	41710	41710	802870	802870
19	Down			
21	41250	41250	844120	844120
22	42930	42930	887050	887050
23	40795	40795	927845	927845
24	43240	43240	971085	971085
25	41830	41830	1012915	1012915
26	Down			

SA 067501

#11 April 1980

Date	Today mf	Today Total	To Date mf	To Date Total
3 31	37605	37605	37605	37605
4 1	30185	30185	67790	67790
2	43655	43655	111445	111445
3	43500	43500	154945	154945
4	32370	32370	187315	187315
5	"			
6	"			
7	36145	36145	223460	223460
8	48520	48520	271980	271980
9	50045	50045	322025	322025
10	49505	49505	371530	371530
11	31755	31755	403285	403285
12	41990	41990	445275	445275
13	42320	42320	487595	487595
14	39380	39380	526975	526975
15	44800	44800	571775	571775
16	43050	43050	614825	614825
17	42490	42490	657315	657315
18	41030	41030	698345	698345
19	Down			
21	24135	24135	722480	722480
22	40305	40305	762785	762785
23	41580	41580	804365	804365
24	41810	41810	846175	846175
25	36200	36200	882375	882375
26	Down			

SA 067502

Totals #10 - #11 Machines

Date	Today mf	Today Total	To Date mf	To Date Total
331	83745	83745	83745	83745
4 1	80665	80665	164410	164410
2	94395	94395	258805	258805
3	91080	91080	349885	349885
4	72450	72450	422335	422335
5	Down			
6	"			
7	72685	72685	495020	495020
8	94130	94130	589150	589150
9	102895	102895	692045	692045
10	102775	102775	794820	794820
11	80365	80365	875185	875185
12	91320	91320	966505	966505
13	90975	90975	1057480	1057480
14	81925	81925	1139405	1139405
15	95030	95030	1234435	1234435
16	91010	91010	1325445	1325445
17	93030	93030	1418475	1418475
18	82740	82740	1501215	1501215
19	Down			
21	65385	65385	1566600	1566600
22	83235	83235	1649835	1649835
23	82375	82375	1732210	1732210
24	85050	85050	1817260	1817260
25	78030	78030	1895290	1895290
26	Down			

22

SA 067503

#10 May 1980

Date	Today mf	Today Total	To Date mf	To Date Total
4 28	28540	28540	28540	28540
29	42790	42790	71330	71330
30	35610	35610	106940	106940
51	Strike			
2	"			
3	"			
5	"		106940	106940
6	"		106940	106940
7	"		106940	106940
8	"		106940	106940
9	"		106940	106940
10	"		106940	106940
12	"		106940	106940
13	"		106940	106940
14	"		106940	106940
15	"		106940	106940
16	"		106940	106940
17	"		106940	106940
18	"		106940	106940
19	"		106940	106940
20	"		106940	106940
21	"		106940	106940
22	"		106940	106940
23	"		106940	106940
24	"		106940	106940

SA 067504

#11 May 98 -

Date	Today My	Today Total	To Date My	To Date Total
428	33280	33280	33280	33280
29	43440	43440	76720	76720
30	26570	26570	103290	103290
51	Strike			
1	"			
2	"			
5	"		103290	103290
6	"		103290	103290
7	"		103290	103290
8	"		103290	103290
9	"		103290	103290
10	"		103290	103290
12	25680	25680	128970	128970
13	29440	29440	158410	158410
14	37480	37480	195890	195890
15	39470	39470	235360	235360
16	28160	28160	263520	263520
17	39000	39000	302520	302520
18	39140	39140	341660	341660
19	37490	37490	379150	379150
20	37360	37360	416510	416510
21	30960	30960	447470	447470
22	27760	27760	475230	475230
23	28420	28420	503650	503650
24	Down		503650	503650

SA 067505

Totals #10 - #11 machines

Date	Today		To Date	
	my	Total	my	Total
4-28	61820	61820	61820	61820
29	86230	86230	148050	148050
30	62180	62180	210230	210230
5-1	Strike			
2	"			
3	"			
5	"		210230	210230
6	"		210230	210230
7	"		210230	210230
8	"		210230	210230
9	"		210230	210230
10	"		210230	210230
12	25680	25680	235910	235910
13	29440	29440	265350	265350
14	37480	37480	302830	302830
15	39470	39470	342300	342300
16	28160	28160	370460	370460
17	39000	39000	409460	409460
18	39140	39140	448600	448600
19	37490	37490	486090	486090
20	37360	37360	523450	523450
21	30960	30960	554410	554410
22	27760	27760	582170	582170
23	28420	28420	610590	610590
24	[illegible]		610590	610590

15

SA 067506

#10 June 1980

Date	Today mf	Total	To Date mf	Total
5-26	Holiday			
27	42060	42060	42060	42060
28	45540	45540	87600	87600
29	34120	34120	121720	121720
30	52940	52940	174660	174660
31	50960	50960	225620	225620
6-1	45420	45420	271040	271040
2	27700	27700	298740	298740
3	44220	44220	342960	342960
4	43460	43460	386420	386420
5	51160	51160	437580	437580
6	42300	42300	479880	479880
7	Sunday			
8	"			
9	42650	42650	522530	522530
10	42240	42240	564770	564770
11	45620	45620	610390	610390
12	36010	36010	646400	646400
13	41650	41650	688050	688050
14	49230	49230	737280	737280
15	18190	18190	755470	755470
16	45150	45150	800620	800620
17	13970	13970	814590	814590
18	35830	35830	850420	850420
19	47100	47100	897520	897520
20	42190	42190	939710	939710
21	Sunday			
22	"			
23	10740	10740	950450	950450
24	33265	33265	983715	983715
25	40420	40420	1024135	1024135
26	32200	32200	1056335	1056335
27	40700	40700	1097035	1097035
28	43420	43420	1140455	1140455
29	48640	48640	1189095	1189095
30	43000	43000	1232095	1232095

SA 067507

#11 June 1980

Date	Today TY	Today Tons	To Date TY	To Date Tons
27	6220	6220	6220	6220
28	29445	29445	35665	35665
29	39000	39000	74665	74665
30	25230	25230	99895	99895
31	37930	37930	137825	137825
61	27160	27160	164985	164985
2	38380	38380	203365	203365
3	12580	12580	215945	215945
4	23330	23330	239275	239275
5	25140	25140	264415	264415
6	25830	25830	290245	290245
7	Holiday			
8	"			
9	24190	24190	314435	314435
10	31730	31730	346165	346165
11	5600	5600	351765	351765
12	2740	2740	354505	354505
13	37100	37100	391605	391605
14	36530	36530	427135	427135
15	36230	36230	463365	463365
16	24100	24100	487465	487465
17	18370	18370	505835	505835
18	25460	25460	531295	531295
19	25175	25175	556470	556470
20	41190	41190	597660	597660
21	Holiday			
22	"			
23	35320	35320	632980	632980
24	31710	31710	664690	664690
25	25579	25579	690269	690269
26	36355	36355	726615	726615
27	33445	33445	760060	760060
28	37530	37530	797590	797590
29	35610	35610	833200	833200
30	35830	35830	869030	869030

SA 067508

Totals #10 - #11 Machines

Date	Today My	Today Total	To Date My	To Date Total
526	No Work Today			
27	48280	48280	48280	48280
28	74985	74985	123265	123265
29	73120	73120	196385	196385
30	78170	78170	274555	274555
31	88890	88890	363445	363445
61	72580	72580	436025	436025
2	66080	66080	502105	502105
3	56800	56800	558905	558905
4	66790	66790	625695	625695
5	76300	76300	701995	701995
6	68130	68130	770125	770125
7	Sunday			
8	"			
9	66840	66840	836965	836965
10	73970	73970	910935	910935
11	51220	51220	962155	962155
12	38750	38750	1000905	1000905
13	78750	78750	1079655	1079655
14	84760	84760	1164415	1164415
15	54420	54420	1218835	1218835
16	69250	69250	1288085	1288085
17	32340	32340	1320425	1320425
18	61290	61290	1381715	1381715
19	72275	72275	1453990	1453990
20	83380	83380	1537370	1537370
21	Sunday			
22	"			
23	46060	46060	1583430	1583430
24	64975	64975	1648405	1648405
25	65990	65990	1714395	1714395
26	68555	68555	1782950	1782950
27	74145	74145	1857095	1857095
28	80950	80950	1938045	1938045
29	84250	84250	2022295	2022295
30	78830	78830	2101125	2101125

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067509

#10 July 1980

Date	Today mf	Today Total	To Date mf	To Date Total
7 1	39250	39250	39250	39250
2	52380	52380	91630	91630
3	36560	36560	128190	128190
4	Holiday			
5	"			
6	"			
7	25590	25590	153780	153780
8	27080	27080	180860	180860
9	47180	47180	228040	228040
10	27200	27200	255240	255240
11	29480	29480	284720	284720
12	57355	57355	342075	342075
13	55320	55320	397395	397395
14	54380	54380	451775	451775
15	51360	51360	503135	503135
16	45040	45040	548175	548175
17	34530	34530	582705	582705
18	41200	41200	623905	623905
19	Sunday			
20	"			
21	43700	43700	667605	667605
22	34760	34760	702365	702365
23	42890	42890	745255	745255
24	35250	35250	780505	780505
25	45950	45950	826455	826455
26	44400	44400	870855	870855
27	40945	40945	911800	911800

SA 067510

#11 July 1980

Date	Today mcf	Total	To Date mcf	Total
71	26940	26940	26940	26940
2	33630	33630	60570	60570
3	22200	22200	82770	82770
4	Holiday			
5	"			
6	27110	27110	109880	109880
8	33610	33610	143490	143490
9	47020	47020	190510	190510
10	45625	45625	236135	236135
11	44075	44075	280210	280210
12	36990	36990	317200	317200
13	35815	35815	353015	353015
14	33375	33375	386390	386390
15	14305	14305	400695	400695
16	22355	22355	423050	423050
17	22905	22905	445955	445955
18	25550	25550	471505	471505
19	Down			
20	"			
21	24770	24770	496275	496275
22	35800	35800	532075	532075
23	41995	41995	574070	574070
24	48265	48265	622335	622335
25	54475	54475	676810	676810
26	59080	59080	735890	735890
27	54950	54950	790840	790840

SA 067511

Totals #10 - #11 Machines

Date	Today my	Today Total	To Date my	To Date Total
7 1	66190	66190	66190	66190
2	86010	86010	152200	152200
3	58760	58760	210960	210960
4	Holiday			
5	"			
6				
7	52700	52700	263660	263660
8	60690	60690	324350	324350
9	94200	94200	418550	418550
10	72825	72825	491375	491375
11	73555	73555	564930	564930
12	94345	94345	659275	659275
13	91135	91135	750410	750410
14	87755	87755	838165	838165
15	65665	65665	903830	903830
16	67395	67395	971225	971225
17	57435	57435	1028660	1028660
18	66750	66750	1095410	1095410
19	Sunday			
20	"			
21	68470	68470	1163880	1163880
22	70560	70560	1234440	1234440
23	84885	84885	1319325	1319325
24	83515	83515	1402840	1402840
25	100425	100425	1503265	1503265
26	103480	103480	1606745	1606745
27	95895	95895	1702640	1702640

SA 067512

#10 August 1980

Date	Today my	Today Total	To Date my	To Date Total
728	39840	39840	39840	39840
29	50670	50670	90510	90510
30	47560	47560	138060	138060
31	43840	43840	181900	181900
8 1	36550	36550	218450	218450
2	[illegible]			
4	38960	38960	257410	257410
5	53945	53945	311355	311355
6	44220	44220	355575	355575
7	43050	43050	398625	398625
8	55870	55870	454495	454495
9	52940	52940	507435	507435
10	52220	52220	559655	559655
11	27070	27070	586725	586725
12	49550	49550	636275	636275
13	29830	29830	666105	666105
14	44830	44830	710935	710935
15	43590	43590	754525	754525
16	[illegible]			
18	48670	48670	803195	803195
19	48670	48670	851865	851865
20	43500	43500	895365	895365
21	[illegible]			

Da

5A 067513

#11 August 1980

Date	Today mcf	Today Total	To Date mcf	To Date Total
728	48075	48075	48075	48075
29	33410	33410	81485	81485
30	40290	40290	121775	121775
31	38010	38010	159785	159785
81	29710	29710	189495	189495
3	[illegible]			
4	25245	25245	214740	214740
5	38140	38140	252880	252880
6	34995	34995	287875	287875
7	28140	28140	316015	316015
8	34000	34000	350015	350015
9	32740	32740	382755	382755
10	24355	24355	407310	407310
11	23315	23315	430625	430625
12	47770	47770	478395	478395
13	46775	46775	525170	525170
14	45395	45395	570565	570565
15	40555	40555	611120	611120
16	Sunday			
18	30795	30795	641915	641915
19	47135	47135	689050	689050
20	39190	39190	728240	728240
21	Sunday			
22	"			
23	"			

SA 067514

Totals #10 - #11 Machines

Date	Today Mf	Today Total	To Date Mf	To Date Total
7 28	87915	87915	87915	87915
29	84080	84080	171995	171995
30	87840	87840	259835	259835
31	81850	81850	341685	341685
8 1	66260	66260	407945	407945
2	Down			
4	64205	64205	472150	472150
5	92085	92085	564235	564235
6	79215	79215	643450	643450
7	71190	71190	714640	714640
8	89870	89870	804510	804510
9	85880	85880	890390	890390
10	76575	76575	966965	966965
11	50385	50385	1017350	1017350
12	97320	97320	1114670	1114670
13	76605	76605	1191275	1191275
14	90225	90225	1281500	1281500
15	84145	84145	1365645	1365645
16	Down			
18	79465	79465	1445110	1445110
19	95805	95805	1540915	1540915
20	82690	82690	1623605	1623605
21	Down			
22	"			
23	"			

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SA 067515

#10 September 1980

Date	Today mf	Today Total	To Date mf	To Date Total
8/25	32590	32590	32590	32590
26	48715	48715	81305	81305
27	50420	50420	131725	131725
28	50620	50620	182345	182345
29	21830	21830	204175	204175
30	Holiday			
31	"			
9/1	"			
2	19850	19850	224025	224025
3	51310	51310	275335	275335
4	53385	53385	328720	328720
5	52650	52650	381370	381370
6	Sunday			
8	51870	51870	433240	433240
9	49070	49070	482310	482310
10	37850	37850	520160	520160
11	Sunday			
12	"			
13	"			
15	35200	35200	555360	555360
16	50810	50810	606170	606170
17	38160	38160	644330	644330
18	34380	34380	678710	678710
19	27700	27700	706410	706410
20	Sunday			
22	29120	29120	735530	735530
23	35550	35550	771080	771080
24	32780	32780	803860	803860
25	Sunday		803860	803860
26	"		803860	803860

SA 867516

#11 September 1980

Date	Today mf	Today Total	To Date mf	To Date Total
8 25	33270	33270	33270	33270
26	32490	32490	65760	65760
27	42085	42085	107845	107845
28	34250	34250	142095	142095
29	40690	40690	182785	182785
30	Holiday			
31	"			
9 1	"			
2	19130	19130	201915	201915
3	43420	43420	245335	245335
4	43390	43390	288725	288725
5	39720	39720	328445	328445
6	Down			
8	36260	36260	364705	364705
9	28430	28430	393135	393135
10	31880	31880	425015	425015
11	Down			
12	"			
13	"			
15	28870	28870	453885	453885
16	34010	34010	487895	487895
17	28930	28930	516825	516825
18	36470	36470	553295	553295
19	34980	34980	588275	588275
20	Down			
22	23980	23980	612255	612255
23	35680	35680	647935	647935
24	40000	40000	687935	687935
25	33620	33620	721555	721555
26	29010	29010	750565	750565

SA 867517

Totals #10-#11 Machines

Date	Today My	Today Total	To Date My	To Date Total
8 25	65860	65860	65860	65860
26	81205	81205	147065	147065
27	92505	92505	239570	239570
28	84870	84870	324440	324440
29	62520	62520	386960	386960
30	Holiday			
31	"			
9 1	"			
2	38980	38980	425940	425940
3	94730	94730	520670	520670
4	96775	96775	617445	617445
5	92370	92370	709815	709815
6	Down			
8	88130	88130	797945	797945
9	77500	77500	875445	875445
10	69730	69730	945175	945175
11	Down			
12	"			
13	"			
15	64070	64070	1009245	1009245
16	84820	84820	1094065	1094065
17	67090	67090	1161155	1161155
18	70850	70850	1232005	1232005
19	62680	62680	1294685	1294685
20	Down			
22	53100	53100	1347785	1347785
23	71230	71230	1419015	1419015
24	72780	72780	1491795	1491795
25	33620	33620	1525415	1525415
26	29010	29010	1554425	1554425

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SA 067518

#11 September 1975

	Today					To Date			
Date	Days worked	mf	Carbon Issue	Total		mf	Carbon Issue	Total	Daily Average
8/25	1	38[illegible]0		38[illegible]0		38[illegible]		38[illegible]	38[illegible]
26	2	15160	26000	41160		53540	26000	79360	39[illegible]
27	3		44370	44370		53360	70370	123650	41[illegible]
28	4		43890	43890		53360	114180	167540	41885
29	5		42120	42120		53360	156300	209660	41932
30	5	[illegible]				53360	156300	[illegible]	41932
31	5	[illegible]				53360	156300	[illegible]	41932
9/2	6	35390		35390		87560	156300	[illegible]	40[illegible]
3	7	41720		41720		130280	156300	286580	40[illegible]
4	8	41780		41780		172060	156300	328360	41045
5	9	42570		42570		214630	156300	370930	41214
6	10	36770		36770		251400	156300	407700	40770
8	11		36210	36210		251400	192510	443910	40355
9	12		39540	39540		251400	232050	483450	40[illegible]
10	13		41740	41740		251400	273790	525190	40371
11	14		34690	34690		251400	308480	559880	39991
12	15		41640	41640		251400	350120	601520	40101
13	16		43810	43810		251400	393930	645330	40333
15	17		35430	35430		251400	429360	680760	40044
16	18		40220	40220		251400	469580	720980	40054
17	19		40150	40150		251400	509730	761130	40059
18	20		44590	44590		251400	554320	805720	40286
19	21		41200	41200		251400	595520	846920	40329
20	21	down				251400	595520	846920	40329
22	22	33500		33500		284900	595520	880420	40019
23	23	43720		43720		328620	595520	924140	40180
24	24	43920		43920		372540	595520	968060	40335
25	25	44180		44180		416720	595520	1012240	40489
26	26	39440		39440		456160	595520	1051680	40449

SA 067528

Totals #10 - #11 Machines September 1975

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
8 25	1	90120		90120	90120		90120	90120
26	2	69820	26000	95820	159940	26000	185940	92970
27	3	40280	44290	84570	200220	70290	270510	90170
28	4	37850	43890	81740	238070	114180	352250	88062
29	5	48030	42120	90150	286100	156300	442400	88480
30	5	Down			286100	156300	442400	88480
9 1	5	Holiday			286100	156300	442400	88480
2	6	78390		78390	364490	156300	520790	86798
3	7	92580		92580	457070	156300	613370	87624
4	8	82380		82380	539450	156300	695750	86968
5	9	61180		61180	600630	156300	756930	84103
6	10	77410		77410	678040	156300	834340	83434
8	11	25440	36210	61650	703480	192510	895990	81453
9	12	41980	39540	81520	745460	232050	977510	81459
10	13	43860	41740	85600	789320	273790	1063110	81777
11	14	52680	34690	87370	842000	308480	1150480	82177
12	15	50990	41640	92630	892990	350120	1243110	82874
13	16	55040	43810	98850	948030	393930	1341960	83872
15	17	43970	35430	79400	992000	429360	1421360	83609
16	18	45030	40220	85250	1037030	469580	1506610	83700
17	19	47800	40150	87950	1084830	509730	1594560	83924
18	20	50550	44590	95140	1135380	554320	1689700	84485
19	21	49900	41200	91100	1185280	595520	1780800	84800
20	21	Down			1185280	595520	1780800	84800
22	22	74420		74420	1259700	595520	1855220	84328
23	23	85920		85920	1345620	595520	1941140	84397
24	24	92730		92730	1438350	595520	2033870	84744
25	25	95800		95800	1534150	595520	2129670	85186
26	26	92360		92360	1626510	595520	2222030	85462
	26		15	26				

SA 067521

#10 October 1975

Date		Days worked		Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
9	29		1	53760		53760	53760		53760	53760
	30		2	59970		59970	113730		113730	56865
10	1		3	64820		64820	178550		178550	59516
	2		4	57620		57620	236170		236170	59042
	3		5	59310		59310	295480		295480	59096
	4		5	Sunday						
	6		6	43700		43700	339180		339180	56530
	7		7	47700		47700	386880		386880	55268
	8		8	49970		49970	436850		436850	54606
	9		9	42580		42580	479430		479430	53270
	10		10	44640		44640	524070		524070	52407
	11		10	Sunday						
	13		11	33980		33980	558050		558050	50731
	14		12	52610		52610	610660		610660	50888
	15		13	48850		48850	659510		659510	50731
	16		14	51910		51910	711420		711420	50815
	17		15	49410		49410	760830		760830	50722
	18		15	Sunday						
	20		16	17750		17750	778580		778580	48661
	21		17	33850		33850	812430		812430	47790
	22		18	40420		40420	852850		852850	47380
	23		19	37780		37780	890630		890630	46875
	24		20	23440		23440	914070		914070	45704
	26		20	Sunday			914090		914090	45704

SA 067522

#11 October 1975

	Today					To Date			
Date	Days Worked		my	Carbon Tissue	Total	my	Carbon Tissue	Total	Daily Average
29	1			[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
30	2			37490	37490		65700	65700	32850
31	3			38700	38700		104400	104400	34800
2	4			[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
3	5			31920	31920		150320	150320	[illegible]
4	5			[illegible]					
6	6			33740	33740		214060	214060	35676
7	7			29620	29620		243680	243680	34811
8	8			34760	34760		278440	278440	34805
9	9			31740	31740		310180	310180	34464
10	10			37820	37820		348000	348000	34800
11	10			Sunday					
13	11		37440		37440	37440	348000	385440	35040
14	11		4170		4170	41610	348000	389610	35419
15	11½		7200		7200	48810	348000	396810	35403
16	12½		44660		44660	93470	348000	441470	35795
17	13½		44980		44980	138450	348000	486450	36484
18	13½			Sunday					
20	14½		40340		40340	178790	348000	526790	36753
21	15½		45740		45740	224530	348000	572530	37331
22	16½		44700		44700	269230	348000	617230	37790
23	17½		9900	28160	38060	279130	376160	655290	37805
24	18½			42840	42840	279130	419000	698130	38080
25	18½			Sunday		279130	419000	698130	38090

SA 067523

Totals #10-11 Machines — October 1975

Date	Days worked		Today: mf	Today: Carbon Tissue	Today: Total	To Date: mf	To Date: Carbon Tissue	To Date: Total	Daily Average
9 29		1	53760	28210	81970	53760	28210	81970	81970
30		2	59970	37490	97460	113730	65700	179430	89715
10 1		3	64820	38700	103520	178550	104400	282950	94316
2		4	57620	44000	101620	236170	148400	384570	96142
3		5	59310	31920	91230	295480	180320	475800	95160
4		5	Down						
6		6	43700	33740	77440	339180	214060	553240	92206
7		7	47700	29620	77320	386880	243680	630560	90080
8		8	49970	34760	84730	436850	278440	715290	89411
9		9	42580	31740	74320	479430	310180	789610	87734
10		10	44640	37820	82460	524070	348000	872070	87207
11		10	Down						
13		11	71420		71420	595490	348000	943490	85771
14	#10 #11	12 11	56780		56780	652270	348000	1000270	86307
15	#10 #11	13 11½	56050		56050	708320	348000	1056320	85744
16	#10 #11	14 12½	96570		96570	804890	348000	1152890	86610
17	#10 #11	15 13½	94390		94390	899280	348000	1247280	87206
18	#10 #11	15 13½	Down						
20	#10 #11	16 14½	58090		58090	957370	348000	1305370	85414
21	#10 #11	17 15½	79590		79590	1036960	348000	1384960	85129
22	#10 #11	18 16½	85120		85120	1122080	348000	1470080	85170
23	#10 #11	19 17½	47680	28160	75840	1169760	376160	1545920	84680
24	#10 #11	20 18½	23460	42840	66300	1193220	419000	1612220	83784
25	#10 #11	20 18½	Down			1193220	419000	1612220	83784
		20		12	20				

SA 067524

#10 November 1975

Date	Days Worked	Today MJ	Today Carbon Issue	Today Total	To Date MJ	To Date Carbon Issue	To Date Total	Daily Average
10 27	1	40230		40230	40230		40230	40230
28	2	45900		45900	86130		86130	43065
29	3	44920		44920	131050		131050	43683
30	4	44400		44400	175450		175450	43862
31	5	45120		45120	220570		220570	44114
11 1	5	[illegible]						
3	6	40200		40200	260770		260770	43461
4	7	45620		45620	306390		306390	43770
5	8	45680		45680	352070		352070	44008
6	9	43500		43500	395570		395570	43952
7	10	44200		44200	439770		439770	43977
8		[illegible]						
10	11	25740		25740	465530		465530	42320
11	12	44000		44000	509530		509530	42460
12	13	40170		40170	549700		549700	42284
13	14	41545		41545	591245		591245	42231
14	15	41440		41440	632685		632685	42179
15	15	[illegible]						
17	16	44030		44030	676715		676715	42294
18	17	43570		43570	720285		720285	42369
19	18	41500		41500	761785		761785	42321
20	19	48290		48290	810075		810075	42635
21	20	27520		27520	837595		837595	41879
22	21	47540		47540	885135		885135	42149
[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	42188

SR 067525

#11 November 1975

	Today					To Date		
Date	Days worked	My	Carbon Issue	Total	My	Carbon Issue	Total	Daily Average
10 27	1		40600	40600		40600	40600	40600
28	2		45140	45140		85740	85740	42870
29	3		44020	44020		129760	129760	43253
30	4		44200	44200		173960	173960	43490
31	5		38910	38910		212870	212870	42574
11 1	5		[illegible]					
3	6		43100	43100		[illegible]	[illegible]	[illegible]
4	7		37200	37200		293170	293170	41884
5	8		44260	44260		337460	337460	42181
6	9		44920	44920		382370	382370	42485
7	10		42100	42100		424470	424470	42447
8			Down					
10	11		40940	40940		465410	465410	42310
11	12		42880	42880		508290	508290	42357
12	13		43040	43040		551330	551330	42410
13	14		41460	41460		592790	592790	42342
14	15		38480	38480		631270	631270	42084
15	15		Down					
17	16		24930	24930		656200	656200	41012
18	17		40440	40440		696640	696640	40978
19	18		42480	42480		739120	739120	41062
20	19		40340	40340		779460	779460	41024
21	20		41880	41880		821340	821340	41067
22	21		37660	37660		859000	859000	40900
Saturday 23	22		41240	41240		900240	900240	40920

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867526

Totals # 10 - 11 Machines November 1975

Date		Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
10	27	1	40230	40600	80830	40230	40600	80830	80830
	28	2	45900	45140	91040	86130	85740	171870	85935
	29	3	44920	44020	88940	131050	129760	260810	86936
	30	4	44400	44200	88600	175450	173960	349410	87352
	31	5	45120	38910	84030	220570	212870	433440	86688
11	1	5	[illegible]						
	3	6	40200	43100	83300	260770	255970	516740	86123
	4	7	45620	37220	82840	306390	293190	599580	85654
	5	8	45680	44260	89940	352070	337450	689520	86190
	6	9	43500	44920	88420	395570	382370	777940	86437
	7	10	44220	42100	86320	439790	[illegible]	864260	86426
	8		[illegible]						
	10	11	25740	40940	66680	465530	465410	930940	84630
	11	12	44000	42880	86880	509530	508290	1017820	84818
	12	13	40170	43040	83210	549700	551330	1101030	84694
	13	14	41545	41460	83005	591245	592790	1184035	84573
	14	15	41440	38480	79920	632685	631270	1263955	84263
	15	15	[illegible]						
	17	16	44030	24930	68960	676715	656200	1332915	83307
	18	17	43570	40440	84010	720285	696640	1416925	83348
	19	18	41500	42480	83980	761785	739120	1500905	83383
	20	19	48290	40340	88630	810075	779460	1589535	83659
	21	20	[illegible]	41880	69400	837595	821340	1658935	82946
	[illegible]	21	47540	37660	85200	885135	859000	1744135	83054
Sup	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	900840	1828395	83108
		22		22	22				

SA 067527

#10 December 1975

Date	Days Worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
11 24	1	48310		48310	48310		48310	48310
25	2	51470		51470	99780		99780	49890
26	3	41260		41260	141040		141040	47013
27	3	Holiday						
28	3							
29	3							
12 1	4	33180		33180	174220		174220	43555
2	5	47040		47040	221260		221260	44252
3	6	44080		44080	265340		265340	44223
4	7	45080		45080	310420		310420	44345
5	8	41340		41340	351760		351760	43970
6	8	Sunday						
8	9	38850		38850	390610		390610	43401
9	10	55590		55590	446200		446200	44620
10	11	38560		38560	484760		484760	44069
11	12	41210		41210	525970		525970	43830
12	13	47660		47660	573630		573630	44125
13	14	35560		35560	609190		609190	43513
Sun 14	15	36840		36840	646030		646030	43068
15	16	34220		34220	680250		680250	42515
16	17	45200		45200	725450		725450	42673
17	18	45760		45760	771210		771210	42845
18	19	40250		40250	811460		811460	42708
19	20	39190		39190	850650		850650	42532
20	21	44330		44330	894980		894980	42618
21	22	47840		47840	942820		942820	42856
22	23	41540		41540	984360		984360	42798
23	24	38080		38080	1022440		1022440	42601

SA 967528

#11 December 1975

Date	Days worked	Today: Mf	Today: Carbon Tissue	Today: Total	To Date: Mf	To Date: Carbon Tissue	To Date: Total	Daily Average
11 24	1		42740	42740		42740	42740	[illegible]
25	2		44230	44230		86770	86770	[illegible]
26	3		39150	39150		126120	126120	[illegible]
27	3		Down					
28	3		Down					
29	3							
12 1	4		40450	40450		166570	166570	[illegible]
2	5		43720	43720		210290	210290	[illegible]
3	6		42820	42820		253110	253110	[illegible]
4	7		44840	44840		297950	297950	[illegible]
5	8		39930	39930		337880	337880	[illegible]
6	8		Down					
8	9		31310	31310		369190	369190	41021
9	10		42410	42410		411600	411600	41160
10	11		31780	31780		443380	443380	[illegible]
11	12		43480	43480		486860	486860	40571
12	13		42260	42260		529120	529120	[illegible]
13	14		39230	39230		568350	568350	[illegible]
Sun 14	15		42880	42880		611230	611230	4074
15	16		41860	41860		653090	653090	4081
16	17		44680	44680		697770	697770	[illegible]
17	18		43960	43960		741730	741730	[illegible]
18	19		42600	42600		784330	784330	41280
19	20		29060	29060		813390	813390	40667
20	21		43690	43690		857080	857080	[illegible]
Sun 21	22		44300	44300		901380	901380	40771
22	23		44560	44560		945940	945940	41127
23	24		40950	40950		986890	986890	41120

SA 067529

Totals #10 - #11 Machines December 1975

Date	Days worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
11 24	1	48310	42740	91050	48310	42740	91050	91050
25	2	51470	44230	95700	99780	86970	186750	93375
26	3	41260	39150	80410	141040	126120	267160	89053
27	3	Holiday						
28	3	Sunday						
29	3							
12 1	4	33180	40450	73630	174220	166570	340790	85197
2	5	47040	43720	90760	221260	210290	431550	86310
3	6	44080	42820	86900	265340	253110	518450	86408
4	7	45080	44840	89920	310420	297950	608370	86910
5	8	41340	39930	81270	351760	337880	689640	86205
6	8	Down						
8	9	38850	31310	70160	390610	369190	759800	84422
9	10	55590	42410	98000	446200	411600	857800	85780
10	11	38560	31780	70340	484760	443380	928140	84376
11	12	41210	43480	84690	525970	486860	1012830	84402
12	13	47660	42260	89920	573630	529120	1102750	84826
13	14	35560	39230	74790	609190	568350	1177540	84110
14	15	36840	42880	79720	646030	611230	1257260	[illegible]
15	16	34220	41860	76080	680250	653090	1333340	83333
16	17	45200	44680	89880	725450	697770	1423220	83718
17	18	45760	43960	89720	771210	741730	1512940	84052
18	19	40250	42600	82850	811460	784330	1595790	83988
19	20	39190	29060	68250	850650	813390	1664040	83202
20	21	44330	45690	88020	894980	857080	1752060	83431
21	[illegible]	47840	44300	92140	942820	901380	1844200	83827
22	23	41540	44560	86100	984360	945940	1930300	83926
23	24	38080	40950	79030	1022440	986890	2009330	83722
	24		24	24				

SA 067530

#10 January 1976

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To date mf	To date Carbon Tissue	To date Total	Daily Average
12 29	1	27740		27740	27740		27740	27740
30	2	25910		25910	53650		53650	26825
31	2	[illegible]						
1 1								
2	3	[illegible]		25820	79470		79470	26490
3	4	42980		42980	122450		122450	30612
Jan 4	5	47280		47280	169730		169730	33946
5	6	48080		48080	217810		217810	36301
6	7	51060		51060	268870		268870	38410
7	8	44180		44180	313050		313050	39131
8	9	18320		18320	331370		331370	36818
9	10	39840		39840	371210		371210	37121
10	10	[illegible]						
12	11	38290		38290	409500		409500	37227
13	12	46020		46020	455520		455520	37960
14	13	37380		37380	492900		492900	37915
15	14	41950		41950	534850		534850	38203
16	15	[illegible]		27540	562390		562390	37492
17	16	41100		41100	603490		603490	37718
Jan 18	17	45080		45080	648570		648570	38151
19	18	41710		41710	690280		690280	38348
20	19	38840		38840	729120		729120	38374
21	20	35290		35290	764410		764410	38220
22	21	24430		24430	788840		788840	37563
23	22	44910		44910	833750		833750	37877
24	23	30270		30270	864020		864020	37566
Jan 25	24	24310		24310	888330		888330	36805

SA 867531

#11 January 1976

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
12 29	1		34980	34980		34980	3498[illegible]	34[illegible]
30	2		40220	40[illegible]		75200	75200	3760
31	2		[illegible]					
1 1	2		"					
2	3		35460	35460		110660	110[illegible]	36[illegible]
3	4		42[illegible]	42[illegible]		153500	[illegible]	[illegible]
Sun 4	5		37040	37040		190540	190540	3[illegible]
5	6		40520	40520		231060	231060	3[illegible]
6	7		45670	45670		276730	276730	3953[illegible]
7	8		45090	45090		321820	321820	40227
8	9		44560	44560		366380	366380	40708
9	9 1/3		10200	10200		376580	376580	40349
10	9 1/3		Down					
12	9 2/3		7280	7280		383860	383860	39708
13	10 2/3	44920		44920	44920	383860	428780	40196
14	11 2/3	45140		45140	90060	383860	473920	40620
15	12 2/3	45800		45800	135860	383860	519720	41027
16	13 2/3	42920		42920	178780	383860	562640	41167
17	14 2/3	45640		45640	224420	383860	608280	41472
Sun 18	15 2/3	46900		46900	271320	383860	655180	41819
19	16 2/3	13560	26120	39680	284880	409980	694860	41690
20	17 2/3		44440	44440	284880	454420	739300	41846
21	18 2/3		46920	46920	284880	501340	786220	42118
22	19 2/3		45460	45460	284880	546800	831680	42288
23	20 2/3		47560	47560	284880	594360	879240	42543
24	21 2/3		44780	44780	284880	639140	924020	42646
Sun 25	22 2/3		45190	45190	284880	684330	969210	42758

SA 067532

Totals #10 - #11 Machines January 1976

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
12 29	1	27740	34980	62720	27740	34980	62720	62720
30	2	25910	40220	66130	53650	75200	128850	64425
31	2	Holiday						
1 1	2	"						
2	3	25820	35460	61280	79470	110660	190130	63376
3	4	42910	42840	85820	122450	153500	275950	68987
Sun 4	5	47280	37040	84320	169730	190540	360270	72054
5	6	48080	40520	88600	217810	231060	448870	74811
6	7	51060	45670	96730	268870	276730	545600	77942
7	8	44180	45090	89270	313050	321820	634870	79358
8	9	18320	44560	[illegible]	331370	366380	697750	77527
9	#10 10 #11 9 2/3	39840	10200	50040	371210	376580	747790	77470
10	#10 10 #11 9 2/3	Lawn						
12	#10 11 #11 9 2/3	38290	7280	45570	409500	383860	793360	76935
13	#10 12 #11 10 2/3	90940		90940	500440	383860	884300	78156
14	#10 13 #11 11 2/3	82520		82520	582960	383860	966820	78535
15	#10 14 #11 12 2/3	[illegible]		87750	670710	[illegible]	1051570	79232
16	#10 15 #11 13 2/3	70460		70460	741170	383860	1125030	78659
17	#10 16 #11 14 2/3	86740		86740	827910	383860	1211770	79190
Sun 18	#10 17 #11 15 2/3	91980		91980	919890	383860	1303750	79970
19	#10 18 #11 16 2/3	55270	26120	81390	975160	409980	1385140	80038
20	#10 19 #11 17 2/3	38840	44440	83280	1014000	454420	1468420	80220
21	#10 20 #11 18 2/3	35270	46920	82210	1049290	501340	1550630	80338
22	#10 21 #11 19 2/3	24430	45460	69890	1073720	546800	1620520	79851
23	#10 22 #11 20 2/3	[illegible]	47560	92470	1118630	594360	1712990	80440
24	#10 23 #11 21 2/3	30270	44780	75050	1148900	639140	1788040	80212
25	#10 24 #11 22 2/3	24310	45190	69500	1173210	684330	1857540	79563
	24		18	24				

5A 067533

#10 February 1976

Date	Days Worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
1 26	1	35520		35520	35520		35520	35520
27	2	44360		44360	79880		79880	39940
28	3	20370		20370	100250		100250	33417
29	4	30510		30510	130760		130760	32690
30	5	35670		35670	166430		166430	33286
31	5	Down			166430		166430	33286
2 2	6	16000		16000	182430		182430	30405
3	7	11450		11450	193880		193880	27697
4	8	25890		25890	219770		219770	27471
5	9	41490		41490	261260		261260	29028
6	10	43830		43830	305090		305090	305[illegible]
7	10	Down			305090		305090	30509
9	11	23210		23210	328300		328300	29845
10	12	39710		39710	368010		368010	30667
11	13	41790		41790	409800		409800	31523
12	14	40650		40650	450450		450450	32175
13	15	42000		42000	492450		492450	32830
14	16	45120		45120	537570		537570	33598
Jun 15	17	45960		45960	583530		583530	34325
16	18	31400		31400	614930		614930	34162
17	19	40050		40050	654980		654980	34472
18	20	34200		34200	689180		689180	34459
19	21	38160		38160	727340		727340	34635
20	22	39920		39920	767260		767260	34875
21	23	47720		47720	814980		814980	35133
Jun 22	24	47580		47580	862560		862560	35740

SA 067534

#11 February 1976

Date		Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
1	26	1		35500	35500		35500	35500	35500
	27	2		35150	35150		70650	70650	353[illegible]
	28	3		18180	18180		88830	88830	29[illegible]0
	29	4		41550	41550		130380	130380	32595
	30	5		44370	44370		174750	174750	34950
	31	5		Down			174750	174750	34[illegible]
2	[illegible]	6		40700	40700		215650	215650	35941
	3	7		40900	40900		256550	[illegible]	36[illegible]50
	4	8	40850		40850	40850	256550	297400	37175
	5	7	45160		45160	86010	256550	342560	38066
	6	10	44740		44740	130750	256550	387300	38730
	7	10	Down			130750	256550	387300	38730
	9	11	42780		42780	173530	256550	430[illegible]	39[illegible]
	10	12	44420		44420	217950	256550	474500	39541
	11	13	45220		45220	263170	256550	519720	39978
	12	14	44830		44830	308000	256550	564550	40325
	13	15	1320	29940	31260	309320	286490	595810	39720
	14	16		42550	42550	309320	329040	638360	39897
	15	Su. 17		36430	36430	309320	365470	674790	39693
	16	18		44190	44190	309320	409660	7[illegible]	39[illegible]
	17	19		29890	29890	309320	439550	748870	39414
	18	20		45270	45270	309320	484820	794140	39707
	19	21		44490	44490	309320	529310	838630	39934
	20	22		44740	44740	309320	574050	883370	40153
	21	23		42320	42320	309320	616370	925690	40247
	22	Sun 24	1900	39600	41500	311220	655970	967190	40299

SA 067535

Totals #10 - #11 Machines — February 1976

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
1 26	1	35520	35500	71020	35520	35500	71020	71020
27	2	44360	35150	79510	79880	70650	150530	75265
28	3	20370	18180	38550	100250	88830	189080	63027
29	4	30510	41550	72060	130760	130380	261140	65285
30	5	35670	44370	80040	166430	174750	341180	68236
31	5	[illegible]			166430	174750	341180	[illegible]
2 2	6	16000	40900	56900	182430	215650	398080	66346
3	7	11450	40900	52350	193880	256550	450430	64347
4	8	66740		66740	260620	256550	517170	64646
5	9	86650		86650	347270	256550	603820	67091
6	10	88570		88570	435840	256550	692390	69239
7	10	Down			435840	256550	692390	69239
9	11	65990		65990	501830	256550	758380	68943
10	12	84130		84130	585960	256550	842510	70209
11	13	87010		87010	672970	256550	929520	71501
12	14	85480		85480	758450	256550	1015000	72500
13	15	43320	29940	73260	801770	286490	1088260	72550
14	16	45120	42550	87670	846890	329040	1175930	73495
Sun 15	17	45960	36430	82390	892850	365470	1258320	74018
16	18	31400	44190	75590	924250	409660	1333910	74106
17	19	40050	29890	69940	964300	439550	1403850	[illegible]
18	20	34200	45270	79470	998500	484820	1483320	74166
19	21	38160	44490	82650	1036660	529310	1565970	74570
20	22	39960	44740	84660	1076580	574050	1650630	75028
21	[illegible]	[illegible]	[illegible]	[illegible]	1124300	616370	1740670	75681
Sun 22	24	49480	37600	89080	1173780	655970	1829750	76229
	24		17	24				

SA 067536

#10 March 1976

Date	Day worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
2 23	1	42290		42290	42290		42290	42290
24	2	37300		37300	79590		79590	39795
25	3	45420		45420	125010		125010	41670
26	4	29310		29310	154320		154320	38580
27	5	43030		43030	197350		197350	39470
3 1	6	37460		37460	234810		234810	39135
2	7	34980		34980	269790		269790	38541
3	8	46140		46140	315930		315930	39491
4	9	23770		23770	339700		339700	37744
5	10	38640		38640	378340		378340	37834
6	11	44810		44810	423150		423150	38468
Sun 7	12	33700		33700	456850		456850	38070
8	13	49330		49330	506180		506180	38936
9	14	36740		36740	542920		542920	38780
10	15	42230		42230	585150		585150	39010
11	16	43300		43300	628450		628450	39278
12	17	35460		35460	663910		663910	39053
13	18	44290		44290	708200		708200	39344
Sun 14	19	16580		16580	724780		724780	38146
15	20	7140		7140	731920		731920	36596
16	21	43620		43620	775540		775540	36930
17	22	49010		49010	824550		824550	37479
18	23	39380		39380	863930		863930	37562
19	24	38900		38900	902830		902830	37617
20	24	[illegible]						
22	25	34130		34130	936960		936960	37478
23	26	31390		31390	968350		968350	37244
24	27	43670		43670	1012020		1012020	37482
25	28	47100		47100	1059120		1059120	37825
26	29	39620		39620	1098740		1098740	37887
27	30	35990		35990	1134730		1134730	37824
Sun 28	31	48810		48810	1183540		1183540	38178

SA 067537

#11 March 1976

Date		Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
2	23	1	44330		44330	44330		44330	44330
	24	2	45930		45930	[illegible]		90[illegible]	45[illegible]
	25	3	45[illegible]		45[illegible]	135[illegible]		135480	45[illegible]
	26	4	43560		43560	179040		179[illegible]	44760
	27	5	41600		41600	220[illegible]		220[illegible]	44128
3	1	6	4[illegible]		42940	26[illegible]		26[illegible]	43[illegible]
	2	7	43[illegible]		43[illegible]	3[illegible]		[illegible]	43[illegible]
	3	8	47210		47210	354430		354[illegible]	44313
	4	9	46780		46780	401210		401210	44578
	5	10	45720		45720	446930		446930	44693
	6	11	477[illegible]		47700	494630		494630	44[illegible]
Sun	7	12	47620		47620	542250		542250	45187
	8	13	44620		44620	586870		586870	45143
	9	14	37520		37520	624390		624390	44599
	10	15	—	34910	34910	624390	34910	659300	43953
	11	16		43390	43390	624390	78300	702690	43918
	12	17		43880	43880	624390	122180	746570	43915
	13	18		46840	46840	624390	169020	793410	44078
Sun	14	19		43680	43680	624390	212700	837090	44057
	15	20		43590	43590	624390	256290	880680	44034
	16	21		43880	43880	624390	300170	924560	44026
	17	22		28300	28300	624390	328470	952860	4331[illegible]
	18	23		45100	45100	624390	373570	997960	43389
	19	24		42420	42420	624390	415990	1040380	43349
	20	24		Down					
	22	25	35500		35500	659890	415990	1075880	43035
	23	26	45710		45710	705600	415990	1121590	43138
	24	27	45440		45440	751040	415990	1167030	43223
	25	28	46230		46230	797270	415990	1213260	43330
	26	29	45780		45780	843050	415990	1259040	43415
	27	30	45430		45430	888480	415990	1304470	43482
Sun	28	31	45630		45630	934110	415990	1350100	43551

SA 067538

Totals #10 - #11 Machines March 1976

Date		Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
2	23	1	86620		86620	86620		86620	86620
	24	2	83230		83230	169850		169850	84925
	25	3	90640		90640	260490		260490	86830
	26	4	72870		72870	333360		333360	83340
	27	5	84630		84630	417990		417990	83598
3	1	6	80400		80400	498390		498390	83065
	2	7	78620		78620	577010		577010	82430
	3	8	93350		93350	670360		670360	83795
	4	9	70550		70550	740910		740910	82323
	5	10	84360		84360	825270		825270	82527
	6	11	92510		92510	917780		917780	83434
Sun	7	12	81320		81320	999100		999100	83258
	8	13	93950		93950	1093050		1093050	84080
	9	14	74260		74260	1167310		1167310	83379
	10	15	42230	34910	77140	1209540	34910	1244450	82963
	11	16	43300	43390	86690	1252840	78300	1331140	83196
	12	17	35460	43880	79340	1288300	122180	1410480	82969
	13	18	44290	46840	91130	1332590	169020	1501610	83422
Sun	14	19	16580	43680	60260	1349170	212700	1561870	82203
	15	20	7140	43590	50730	1356310	256290	1612600	80630
	16	21	43620	43880	87500	1399930	300170	1700100	80957
	17	22	49010	28300	77310	1448940	328470	1777410	80791
	18	23	39380	45100	84480	1488320	373570	1861890	80951
	19	24	38900	[illegible]	81320	1527220	415990	1943210	80967
	20	24	Down						
	22	25	69630		69630	1596850	415990	2012840	80513
	23	26	77100		77100	1673950	415990	2089940	80382
	24	27	89110		89110	1763060	415990	2179050	80705
	25	28	93330		93330	1856390	415990	2272380	81156
	26	29	85400		85400	1941790	415990	2357780	81302
	27	30	81420		81420	2023210	415990	2439200	81306
Sun	28	31	94440		94440	2117650	415990	2533640	81730
		31		10	31				

SA 067539

#10 April 1976

Date	Days worked	Today mf	Carton Issue	Total	To Date mf	Carton Issue	Total	Daily Average
3 29	1	49130		49130	49130		49130	49130
30	2	44650		44650	93780		93780	46890
31	3	46980		46980	140760		140760	46920
4 1	4	49490		49490	190250		190250	47562
2	5	47020		47020	237270		237270	47454
3	6	48090		48090	285360		285360	47560
Sun. 4	7	37880		37880	323240		323240	46177
5	8	26160		26160	349400		349400	43675
6	9	47860		47860	397260		397260	44140
7	10	44560		44560	441820		441820	44182
8	11	18560		18560	460380		460380	41852
9	12	41720		41720	502100		502100	41841
10	13	32820		32820	534920		534920	41147
Sun. 11	14	42105		42105	577025		577025	41216
12	15	38890		38890	615915		615915	41061
13	16	41380		41380	657295		657295	41080
14	17	18440		18440	675735		675735	37747
15	18	33580		33580	709315		709315	39406
16	19	28790		28790	738105		738105	38847
17	19	Down.						
19	20	20670		20670	758775		758775	37938
20	21	25530		25530	784305		784305	37347
21	22	35830		35830	820135		820135	37278
22	23	42870		42870	863005		863005	37521
23	24	24080		24080	887085		887085	36961
24	25	29950		29950	917035		917035	36681
25	26	39280		39280	956315		956315	36781

SA 867540

#11 April 1976

		Today					To Date			
Date	Days worked	Mf	Carbon Issue	Total		Mf	Carbon Issue	Total	Average
3-27	1	44740		44740		44740		44740	44740
30	2	46700		46700		91440		91440	45720
31	3	22380	15100	37480		113840	15100	128940	[illegible]
4-1	4		37740	37740		113840	52840	166680	41670
2	5		39480	39480		113840	[illegible]	[illegible]	41088
3	6		44080	44080		113840	[illegible]	[illegible]	[illegible]
Sun. 4	7		35470	35470		113840	171270	285710	40815
5	8		35710	35710		113840	[illegible]	[illegible]	40710
6	9		35240	35240		113840	[illegible]	356[illegible]	[illegible]
7	10		29100	29100		113840	271380	385220	38522
8	11		39180	39180		113840	310560	424400	38581
9	12		32260	32260		113840	342820	456660	38055
10	13		39750	39750		113840	382570	496410	38185
Sun. 11	14		41570	41570		113840	424140	537980	38427
12	15		40900	40900		113840	465040	578880	38592
13	16		38110	38110		113840	503150	616990	38561
14	17		42520	42520		113840	545670	659510	38794
15	18		40980	40980		113840	586650	700490	38916
16	19		40290	40290		113840	626940	740780	38988
17	19	Holiday							
19	20	31500		31500		145340	626940	772280	38614
20	21	44300		44300		189640	626940	816580	38884
21	22	43630		43630		233270	626940	860210	39100
22	23	26170		26170		259440	626940	886380	38539
23	24	44110		44110		303550	626940	930490	38770
24	25	40590		40590		344140	626940	971080	38843
25	26	45000		45000		389140	626940	1016080	39080

SA 067541

Tally

Test 10 - 11 Machine

Date 1976

Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop	Start	Stop
1	968970	968970																																											
2	968970	968970																																											
3	968970	968970																																											
4	968970	968970																																											
5	968970	968970																																											
6	968970	968970																																											
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24	968970	968970																																											
25	968970	968970																																											

Total 17 24 19

SR 067542

#10 May 1976

Date	Days worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
4-26	1	36310		36310	36310		36310	36310
27	2	32750		32750	69060		69060	34530
28	3	32530		32530	101590		101590	33863
29	4	35160		35160	136750		136750	34187
30	5	40620		40620	177370		177370	35474
5-1	6	35060		35060	212430		212430	35405
Sun 2	7	36700		36700	249130		249130	35590
3	8	33690		33690	282820		282820	35352
4	9	34110		34110	316930		316930	35214
5	10	31110		31110	348040		348040	34804
6	11	26880		26880	374920		374920	34083
7	12	26230		26230	401150		401150	33429
8	12	Down						
10	13	33760		33760	434910		434910	33454
11	14	31330		31330	466240		466240	33302
12	15	37390		37390	503630		503630	33575
13	16	38230		38230	541860		541860	33866
14	17	35730		35730	577590		577590	33975
15	17	Down						
17	18	39990		39990	617580		617580	34310
18	19	33990		33990	651570		651570	34293
19	20	41750		41750	693320		693320	34666
20	21	[illegible]		38220	731540		731540	34835
21	22	26680		26680	758220		758220	34464
22	22	Down						

SA 867543

41 May 1976

Date	Days worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
4-26	1	42030		42030	42030		42030	42030
27	2	45650		45650	87680		87680	43840
28	3	43720		43720	131600		131600	43866
29	4	33020		33020	164620		164620	41155
30	5	30900		30900	195520		195520	39104
5-1	6	41700		41700	237220		237220	39537
Sun 2	7	40360		40360	277580		277580	39654
3	8	2400	19470	21870	280180	19470	299650	37456
4	9		40770	40770	280180	60240	340420	37824
5	10		40090	40090	280180	100330	380510	38051
6	11		35310	35310	280180	135640	415820	37801
7	12		40050	40050	280180	175690	455870	37989
8	13	Sunday						
10	13		35330	35330	280180	211020	491200	37784
11	14		38010	38010	280180	249030	529210	37800
12	15		42150	42150	280180	291180	571360	38090
13	16		44270	44270	280180	335450	615630	38476
14	17		24670	24670	280180	360120	640300	37664
15	17	Sunday						
17	18	4120	15410	19530	284300	375530	659830	36657
18	19		35320	35320	284300	410850	695150	36586
19	20		37790	37790	284300	448640	732940	36647
20	20½		4100	4100	284300	452740	737040	36248
21	21		17650	17650	284300	470390	754690	35937
22	21	Sunday						

SR 067544

Seals 10 - #11 Machines May 1976

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily average
4 26	1	78540		78540	78540		78540	78540
27	2	78400		78400	156940		156940	78470
28	3	76250		76250	233190		233190	77730
29	4	68380		68380	301570		301570	75392
30	5	71520		71520	373090		373090	74618
5 1	6	76760		76760	449850		449850	74975
Sun 2	7	77060		77060	526910		526910	75272
3	8	36090	19470	55560	563000	19470	582470	72808
4	9	34110	40770	74880	597110	60240	657350	73038
5	10	31110	40090	71200	628220	100330	728550	72855
6	11	26880	35310	62190	655100	135640	790740	71885
7	12	26230	40050	66280	681330	175690	857020	71418
8	12	Down						
10	13	33760	35330	69090	715090	211020	926110	71239
11	14	31330	38010	69340	746420	249030	995450	71103
12	15	37390	42150	79540	783810	291180	1074990	71666
13	16	38230	44270	82500	822040	335450	1157490	72343
14	17	35730	24670	60400	857770	360120	1217890	71640
15	17	Down						
17	18	44110	15410	59520	901880	375530	1277410	70967
18	19	33990	35320	69310	935870	410850	1346720	70880
19	20	41750	37790	79540	977620	448640	1426260	71313
20	#10 21 #11 20	38220	4100	42320	1015840	452740	1468580	71083
21	#10 22 #11 21	26680	17650	44330	1042520	470390	1512910	70401
22	#10 22 #11 21	Down						
	22		15	22				

SA 067545

#10 June 1976

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
5 24	1	39060		39060	39060		39060	39060
25	2	37540		37540	76600		76600	38300
26	3	36700		36700	113300		113300	37766
27	4	35620		35620	148920		148920	37230
28	5	25120		25120	174040		174040	34808
29	5	Down						
31		Holiday						
6 1	6	28670		28670	202710		202710	33785
2	7	34000		34000	236710		236710	33815
3	8	42320		42320	279030		279030	34878
4	9	33480		33480	312510		312510	34723
5	10	39380		39380	351890		351890	35189
Sun 6	11	49520		49520	401410		401410	36491
7	12	52580		52580	453990		453990	37832
8	13	50960		50960	504950		504950	38842
9	14	42410		42410	547360		547360	39097
10	15	21050		21050	568410		568410	37874
11	16	40530		40530	608940		608940	38058
12	17	27500		27500	636440		636440	37437
14	18	39980		39980	676420		676420	37578
15	19	39120		39120	715540		715540	37660
16	20	35080		35080	750620		750620	37501
17	21	44000		44000	794620		794620	37839
18	22	39780		39780	834400		834400	37927
19	22	Down			834400		834400	37927
21	22	"			834400		834400	37927
22	23	39740		39740	874140		874140	38006
23	24	43790		43790	917930		917930	38247
24	25	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]
25	26	39980		39980	996680		996680	38333
28	27	29790		29790	1026470		1026470	38017
29	28	43440		43440	1069910		1069910	[illegible]
30	29	[illegible]		38300	1108210		1108210	[illegible]

SA 067546

#11 June 1976

Date	Days worked	Today M	Today Carton Issue	Today Total	To Date M	To Date Carton Issue	To Date Total	To Date Average
5 24	1	38680		38680	38680		38680	38680
25	2	43710		43710	82390		[illegible]	41195
26	3	41100		41100	123490		123490	41163
27	4	37050		37050	[illegible]		160540	40135
28	5	36970		36970	197510		197510	39502
29	5	Down						
6 31	6		34500	34500	197510	34500	232010	38669
2	7		29140	29140	197510	63640	261150	37307
3	8		41920	41920	197510	105560	303070	37883
4	9		40880	40880	197510	146440	343950	38216
5	10		41040	41040	197510	187480	384990	38499
Sun 6	11		40100	40100	197510	227580	425090	38644
7	12		42420	42420	197510	270000	467510	38958
8	13		42230	42230	197510	312230	509740	39214
9	14		39300	39300	197510	351580	549090	39220
10	15		32330	32330	197510	383910	581420	38761
11	16		39790	39790	197510	423700	621210	38815
12	17		37950	37950	197510	461650	659160	38774
14	18		34550	34550	197510	496200	693710	38539
15	19		35380	35380	197510	531580	729090	38373
16	20	27200	7990	35190	224710	539570	764280	38214
17	21	39220		39220	263930	539570	803500	38261
18	22	38280		38280	302210	539570	841780	38263
19	22	Sunday						
21	23	15700	9500	25200	317910	549070	866980	37694
22	24		40270	40270	317910	589340	907250	37803
23	25	22720		22720	340630	589340	929970	37198
24	26	38280		38280	378910	589340	[illegible]	37346
25	27	39800		39800	418710	589340	1008050	37355
28	28	36020		36020	454730	589340	1044670	37288
29	29	31880		31880	486610	589340	1075950	37101
30	30		34150	34150	486610	623490	1110100	37003

SR 067547

410 September 1975

Date	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
8-25	1	51920		51920	51920		51920	51920
26	2	54660		54660	106580		106580	53290
27	3	40280		40280	146860		146860	48953
28	4	37850		37850	184710		184710	46177
29	5	48030		48030	232740		232740	46548
30	5	[illegible]			232740		232740	46548
9-1	5	[illegible]			232740		232740	46548
2	6	[illegible]		[illegible]	275930		275930	45988
3	7	50860		50860	326790		326790	46684
4	8	40600		40600	367390		367390	45923
5	9	18610		18610	386000		386000	42888
6	10	40640		40640	426640		426640	42664
8	11	25440		25440	452080		452080	41098
9	12	41980		41980	494060		494060	41171
10	13	43860		43860	537920		537920	41378
11	14	52680		52680	590600		590600	42185
12	15	50990		50990	641590		641590	42772
13	16	55040		55040	696630		696630	43539
15	17	43970		43970	740600		740600	43564
16	18	45030		45030	785630		785630	43646
17	19	47800		47800	833430		833430	43864
18	20	50550		50550	883980		883980	44199
19	21	49900		49900	933880		933880	44470
20	21	[illegible]			933880		933880	44470
22	[illegible]	40920		40920	974800		974800	44309
23	23	42200		42200	1017000		1017000	44217
24	24	48510		48510	1065510		1065510	44408
25	25	51620		51620	1117430		1117430	44697
26	26	52920		52920	1170350		1170350	45013

SA 067548

Totals #10 - #11 Machines June 1976

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
5 24	1	77740		77740	77740		77740	77740
25	2	81250		81250	158990		158990	79495
26	3	77800		77800	236790		236790	78930
27	4	72670		72670	309460		309460	77365
28	5	62090		62090	371550		371550	74310
29	5	Down						
31 6 1	6	28670	34500	63170	400220	34500	434720	72453
2	7	34000	29140	63140	434220	63640	497860	71122
3	8	42320	41920	84240	476540	105560	582100	72762
4	9	33480	40880	74360	510020	146440	656460	72940
5	10	39380	41040	80420	549400	187480	736880	73688
Sun 6	11	49520	40100	89620	598920	227580	826500	75136
7	12	52580	42420	95000	651500	270000	921500	76791
8	13	50960	42280	93240	702460	312280	1014740	78056
9	14	42410	39300	81710	744870	351580	1096450	78317
10	15	21050	32330	53380	765720	383910	1149830	76655
11	16	40530	39790	80320	806450	423700	1230150	76884
12	17	27500	37750	65450	833950	461650	1295600	76211
14	18	39980	34550	74530	873930	496200	1370130	76118
15	19	39120	35380	74500	913050	531580	1444630	76033
16	20	62280	7990	70270	975330	539570	1514900	75745
17	21	83220		83220	1058550	539570	1598120	76100
18	22	78060		78060	1136610	539570	1676180	76190
19	22	[illegible]			1136610	539570	1676180	76190
21 #10 #11	23	15700	9500	25200	1152310	549070	1701380	75621
22 #10 #11	24	39740	40270	80010	1192050	589340	1781390	75808
23 #10 #11	25	66510		66510	1258560	589340	1847900	75415
24 #10 #11	26	77050		77050	1335610	589340	1924950	75508
25 #10 #11	27	79780		79780	1415390	589340	2004730	75668
28 #10 #11	28	65810		65810	1481200	589340	2070540	75305
29 #10 #11	29	75320		75320	1556520	589340	2145860	75312
30 #10 #11	30	38300	34150	72450	1594820	623490	2218510	75217
	30		18	30				

SA 067549

#10 July 1976

Date	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
71	1	39870		39870	39870		39870	39870
2	2	15370		15370	55240		55240	27620
3		[illegible]						
5	2	[illegible]						
6	3	33930		33930	89170		89170	29723
7	4	50670		50670	139840		139840	34960
8	5	51440		51440	191280		191280	38256
9	6	42120		42120	233400		233400	38900
10	7	21830		21830	255230		255230	36461
11	8	40190		40190	295420		295420	36927
12	9	36990		36990	332410		332410	36934
13	10	39410		39410	371820		371820	37182
14	11	41300		41300	413120		413120	37556
15	12	31060		31060	444180		444180	37015
16	13	[illegible]		[illegible]	475500		475500	36346
17	13	[illegible]						
19	13½	220		220	472720		472720	35454
20	14½	[illegible]		[illegible]	[illegible]		[illegible]	34485
21	15½	30100		30100	501380		501380	34199
22	16½	36970		36970	561350		561350	34369
23	17½	18660		18660	580010		580010	33462
24	17½	[illegible]						
26	18½	23040		23040	603050		603050	32894
27	19½	33110		33110	636160		636160	32905
28	20½	35210		35210	671370		671370	33018
29	21½	41070		41070	712440		712440	33996
30	22½	43570		43570	756010		756010	33851

SA 067550

#11 July 1976

Date	Days worked	Today My	Today Carbon Tonne	Today Total	To Date My	To Date Carbon Tonne	To Date Total	Daily Average
71	1		39570	39570		39570	39570	39570
[illegible]	2		[illegible]	[illegible]		73340	[illegible]	[illegible]
5	[illegible]							
6	3		31030	31030		104370	104370	[illegible]
7	4		44180	44180		148550	148550	37130
8	5		38160	38160		186680	186680	37336
9	6		34410	34410		[illegible]	[illegible]	[illegible]
10	7		37060	37060		258150	258150	36878
11	8		38270	38270		296420	296420	[illegible]
12	9		37040	37040		333460	333460	37051
13	10		42270	42270		375730	375730	37573
14	11		39700	39700		415430	415430	37766
15	12		36510	36510		451940	451940	37661
16	13		38060	38060		490000	490000	[illegible]
17	13		Down					
19	13½	8770		8770	8770	490000	498770	37408
20	14½	37940		37940	46710	490000	536710	[illegible]
21	15½	37990		37990	84700	490000	574700	37481
22	16½	38770		38770	123470	490000	613470	37560
23	17½	36370		36370	159840	490000	649840	37491
24	17½	Down						
26	18½	29920		29920	189760	490000	679760	37078
27	19½	39670		39670	229430	490000	719430	37210
28	20½	39420		39420	268850	490000	758850	37351
29	21½	41750		41750	310600	490000	800600	37515
30	22½	33010		33010	343610	490000	833610	37326

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067551

Totals #10-#11 Machines July 1976

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
71	1	39870	39570	79440	39870	39570	79440	79440
2	2	15370	33740	49110	55240	73310	128550	64275
3	3	[illegible]						
5	3	[illegible]						
6	3	33720	31030	64960	89170	104540	193510	64503
7	4	50270	44180	94850	139840	148520	288360	72090
8	5	51440	38160	89600	191280	186680	377960	75592
9	6	42120	34410	76530	233400	221090	454490	75748
10	7	21830	37060	58890	255230	258150	513380	73340
11	8	40170	38270	78460	295420	296420	591840	73980
12	9	36910	37040	74030	332410	333460	665870	73985
13	10	39410	42270	81680	371820	375730	747550	74755
14	11	41300	39700	81000	413120	415430	828550	75322
15	12	31060	36510	67570	444180	451940	896120	74676
16	13	[illegible]	38[illegible]	66380	472500	490000	962500	74038
17	13	[illegible]						
19	13	8990		8990	481490	490000	971490	72863
20	[illegible]	[illegible]		[illegible]	540990	490000	[illegible]	71931
21	15	[illegible]		[illegible]	609080	490000	1099080	71680
22	16	75740		75740	684820	490000	1174820	71929
23	17	[illegible]		[illegible]	739850	490000	1229850	70954
24	17	[illegible]						
26	18	[illegible]		[illegible]	792810	490000	1282810	69972
27	[illegible]	72780		72780	865590	490000	1355590	70117
[illegible]	[illegible]	[illegible]		[illegible]	940[illegible]	490000	1430[illegible]	70339
[illegible]	[illegible]	[illegible]		[illegible]	1[illegible]040	[illegible]	[illegible]	70724
30	22	76580		76580	1099620	490000	1589620	71178
	23		13	23				

SA 067552

#10 August 1976

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
82	1	35800		35800	35800		35800	35800
3	2	36610		36610	72410		72410	36205
4	3	35760		35760	108170		108170	36056
5	4	42210		42210	150380		150380	37595
6	5	33200		33200	183580		183580	36716
7	6	24770		24770	208350		208350	34725
8	7	45550		45550	253900		253900	36271
9	8	27520		27520	281420		281420	35177
10	9	42840		42840	324260		324260	36028
11	10	28040		28040	352300		352300	35280
12	11	34540		34540	386840		386840	35167
13	12	41310		41310	428150		428150	35679
14	12	Down						
16	13	27780		27780	455930		455930	35071
17	14	33070		33070	489000		489000	34928
18	15	30380		30380	519380		519380	34625
19	16	30060		30060	549440		549440	34340
20	17	33970		33970	583410		583410	34318
21	18	42620		42620	626030		626030	34779
22	19	35710		35710	661740		661740	34828
23	20	44330		44330	706070		706070	35303
24	21	41620		41620	747690		747690	35604
25	22	35700		35700	783390		783390	35601
26	23	33010		33010	816400		816400	35495
27	24	31110		31110	847510		847510	35312
28	25	35790		35790	883470		883470	35239
29	26	41500		41500	925050		925050	35579

SA 067553

#11 August 1976

		Today				To Date			
Date	Days worked	mf	Carbons Issued	Total	mf	Carbon Issued	Total	Daily Average
2	1	10440	22470	22470	10440	22470	22470	22470
3	2		41310	41310	10440	63780	63780	[illegible]
4	3		39280	39280	10440	103060	104100	34700
5	4		30460	30460	10440	133520	134560	[illegible]
6	5		40040	40040	10440	173560	174600	34920
7	6	26980	9290	36270	[illegible]	182850	210870	[illegible]
8	7	42360		42360	70360	182850	253230	36175
9	8	38600		38600	108780	182850	[illegible]	[illegible]
10	9	42320		42320	151300	182850	334150	37127
11	10	39020		39020	190320	182850	[illegible]	[illegible]
12	11	40660		40660	230980	182850	413830	37620
13	12	40580		40580	271560	182850	454410	37867
14	12	Sunday						
16	13	2940	18660	21600	274500	201510	476010	36616
17	14		29540	29540	274500	231050	505550	36110
18	15		31900	31900	274500	262950	537450	35830
19	16		38180	38180	274500	301130	575630	35976
20	17		40290	40290	274500	341420	615920	36230
21	18		36160	36160	274500	377580	652080	36206
22	19		33270	33270	274500	410850	685350	36070
23	20		40680	40680	274500	451530	726030	36301
24	21		26590	26590	274500	478120	752620	35839
25	22		19430	19430	274500	497550	772050	35093
26	23		33830	33830	274500	531380	805880	35038
27	24		30740	30740	274500	562120	836620	34857
28	25		39530	39530	274500	601650	876150	35046
29	26		41340	41340	274500	642990	917490	35288

SR 067554

Totals #10 - #11 machines — August 1976

Date	Days worked	Today my	Today Carbon Issue	Today Total	To Date my	To Date Carbon Issue	To Date Total	Daily Average
82	1	36840	22470	59310	36840	22470	59310	59310
3	2	36610	41310	77920	73450	63780	137230	68615
4	3	35760	39280	75040	109210	103060	212270	70756
5	4	42210	30460	72670	151420	133520	284940	71235
6	5	33200	40040	73240	184620	173560	358180	71636
7	6	51750	9290	61040	236370	182850	419220	69870
8	7	87910		87910	324280	182850	507130	72447
9	8	66120		66120	390400	182850	573250	71656
10	9	85160		85160	475560	182850	658410	73156
11	10	67060		67060	542620	182850	725470	72547
12	11	75200		75200	617820	182850	800670	72788
13	12	81890		81890	699710	182850	882560	73546
14	12	Down						
16	13	30720	18660	49380	730430	201510	931940	71687
17	14	33070	29540	62610	763500	231050	994550	71039
18	15	30380	31900	62280	793880	262950	1056830	70455
19	16	30060	38180	68240	823940	301130	1125070	70316
20	17	33970	40290	74260	857910	341420	1199330	70548
21	18	42620	36160	78780	900530	377580	1278110	71006
22	19	35710	33270	68980	936240	410850	1347090	70899
23	20	44330	40680	85010	980570	451530	1432100	71605
24	21	41620	26590	68210	1022190	478120	1500310	71443
25	22	35760	19430	55130	1057890	497550	1555440	70701
26	23	33010	33830	66840	1090900	531380	1622280	70533
27	24	31110	30740	61850	1122010	562120	1684130	70172
28	25	35980	39530	75510	1157990	601650	1759640	70385
29	26	41560	41340	82900	1199550	642990	1842540	70866
	26		20	26				

SA 867555

#10 September 1976

Date	Days Cooked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
8 30	1	32380		32380	32380		32380	32380
31	2	41610		41610	73990		73990	36995
9 1	3	35940		35940	109930		109930	36643
2	4	45210		45210	155140		155140	38785
3	5	32820		32820	187960		187960	37592
4	5	[illegible]						
7	[illegible]	40020		40020	227980		227980	37996
8	7	43640		43640	271620		271620	38802
9	8	40350		40350	311970		311970	38996
10	9	43380		43380	355350		355350	39483
11	10	44500		44500	400150		400150	40015
12	11	43470		43470	443620		443620	40329
13	12	46310		46310	489930		489930	40827
14	13	43410		43410	533340		533340	41032
15	14	42660		42660	576480		576480	41177
16	15	14230		14230	590710		590710	39380
17	16	32470		32470	623180		623180	38948
18	16	[illegible]						
20	17	27710		27710	650890		650890	38287
21	18	41920		41920	692810		692810	38489
22	19	44740		44740	737550		737550	38818
23	20	22440		22440	759990		759990	37999
24	21	31800		31800	791790		791790	37704
25	21	[illegible]						
27	22	30480		30480	[illegible]		[illegible]	37375
28	23	[illegible]		[illegible]	[illegible]		[illegible]	37498
29	23 3/4	37930		37930	902390		902390	38128
30	24 3/4	31180		31180	933570		933570	37844
10 1	25 3/4	32790		32790	966310		966310	37647

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867556

#11 September 1976

Date	Days Worked	Today Mf	Today Carbon Issue	Today Total	To Date Mf	To Date Carbon Issue	To Date Total	Daily Average
8 30	1		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
31	2		43020	43020		81280	[illegible]	[illegible]
9 1	3	13260	21810	35070	13260	103090	116350	38753
2	4	32300		32300	45560	103890	149450	38162
3	5	33740		33740	83300	103890	187190	37278
4	5	Sunday						
7	6	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	7	41540		[illegible]	[illegible]	103090	[illegible]	[illegible]
9	8	38740		[illegible]	[illegible]	103090	[illegible]	[illegible]
10	9	39920		39920	240700	103090	343790	38198
11	10	1000	30590	31590	241700	133680	375380	37538
12	11		41070	41070	241700	174750	416450	37857
13	12		39390	39390	241700	214140	455840	37986
14	13	1570	21150	18580	257280	216890	474370	[illegible]
15	14	[illegible]		[illegible]	287700	216890	[illegible]	[illegible]
16	15	11930		11930	301830	216890	518720	34581
17	16	29250		29250	331080	216890	547970	34248
18	16	Sunday						
20	17	1300	35920	37220	332380	252810	585190	34422
21	18		38660	38660	332380	291470	623850	34658
22	19		37420	37420	332380	328890	661270	34803
23	20		37070	37070	332380	365960	698340	34917
24	21		37740	37740	332380	403700	736080	35051
25	21	Sunday						
27	22		32830	32830	332380	436530	768910	34950
28	23	1760	22650	24410	334140	459180	793320	34192
29	24		42060	42060	334140	501240	835380	34807
30	25		33120	33120	334140	534360	868500	34740
10 1	26		37380	37380	334140	571740	905880	30995

SA 867557

Totals #10 - #11 Machines September 1976

Date	Days Worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
8 30	1	32340	38200	70580	32380	38200	70580	70580
31	2	41610	43080	84690	73990	81280	155270	77635
9 1	3	49700	21810	71010	123190	103090	226280	75426
2	4	81510		81510	204700	103090	307790	76947
3	5	66960		66960	271260	103090	374850	74870
4	6	[illegible]						
7	[illegible]	[illegible]		[illegible]	348480	103090	451570	75261
8	7	85180		85180	433660	103090	536750	76678
9	8	[illegible]		79090	512750	103090	615840	76980
10	9	83300		83300	596050	103090	699140	77682
11	10	[illegible]	30590	76390	641850	133680	775530	77553
12	11	[illegible]	41070	84540	685390	174750	860070	78188
13	12	[illegible]	[illegible]	85760	731650	[illegible]	945770	78814
14	13	59270	2750	62020	790900	216890	1007790	77522
15	14	75480		75480	866380	[illegible]	1083270	77376
16	15	26160		26160	892540	216890	1109430	73962
17	16	61720		61720	954260	216890	1171150	73196
18	16	[illegible]						
19	17	[illegible]	35900	61930	983270	[illegible]	1236080	72710
21	18	41920	38660	80580	1025190	291470	1316660	73147
22	19	44740	37420	82160	1069930	328890	1398820	73622
23	20	[illegible]	37070	59510	1092370	365900	1458330	72916
24	21	[illegible]	37740	69540	1124170	403700	1527870	72755
25	22	[illegible]						
27	22	[illegible]	[illegible]	63310	1154650	436530	1591180	72326
28	23	[illegible]	[illegible]	[illegible]	1196600	459180	1655780	71990
29	#10 [illegible] #11 [illegible]	[illegible]	42060	81970	1236530	501240	1737770	72935
30	#10 [illegible] #11 [illegible]	[illegible]	33100	64250	1267660	534360	1802020	72584
10 1	#10 [illegible] #11 [illegible]	[illegible]	37380	70170	1300450	571740	1872190	68642
	26		17	26				

SA 067558

#10 October 1976

Date		Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
10	4	1	26220		26220	26220		26220	26220
	5	2	35680		35680	61900		61900	30950
	6	3	35810		35810	97710		97710	32570
	7	4	41280		41280	138990		138990	34747
	8	4	Down						
	9	4	"						
	11	5	27650		27650	166640		166640	33328
	12	6	15840		15840	182480		182480	30413
	13	7	30400		30400	212880		212880	30411
	14	8	28890		28890	241770		241770	30221
	15	9	24540		24540	266310		266310	29590
	16	10	38860		38860	305170		305170	30517
Sun	17	11	33830		33830	339000		339000	30818
	18	12	27330		27330	366330		366330	30527
	19	13	39770		39770	406100		406100	31238
	20	14	13300		13300	419400		419400	29957
	21	15	30560		30560	449960		449960	29997
	22	16	37060		37060	487020		487020	30438
	23	16	Down			487020		487020	30438
	25	16	"			487020		487020	30438
	26	17	42200		42200	529220		529220	31130
	27	18	42060		42060	571280		571280	31737
	28	19	38780		38780	610060		610060	32108
	29	20	21830		21830	631890		631890	31594
	30	21	42680		42680	674570		674570	32122
Sun	31	22	44080		44080	718650		718650	32665

[redacted]

SA 067559

#11 October 1976

Date		Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
10	4	1	33940		33940	33940		33940	33[illegible]
	5	2	39090		39090	73030		73030	36[illegible]
	6	3	36830		36830	109860		109860	36[illegible]
	7	4	40070		40070	149930		149930	37482
	8	4	Down						
	9	4	"						
	11	5	36380		36380	186310		186310	37[illegible]
	12	6	36830		36830	223140		223140	37[illegible]
	13	7	40910		40910	264050		264050	37[illegible]
	14	8	32750		32750	296800		296800	37100
	15	9	36350		36350	333150		333150	37016
	16	10	3180	20880	24060	336330	20880	357210	35721
Sun	17	11		39770	39770	336330	60650	396980	36089
	18	12	13580		13580	349910	60650	410560	34213
	19	13	11550	14980	26530	361460	75630	437090	33622
	20	14		39070	39070	361460	114700	476160	34011
	21	15		40410	40410	361460	155110	516570	34438
	22	16		39870	39870	361460	194980	556440	34777
	23	16	Down			361460	194980	556440	34777
	25	17		35880	35880	361460	230860	592320	34842
	26	18		39550	39550	361460	270410	631870	35103
	27	19		42100	42100	361460	312510	673970	35472
	28	20		40050	40050	361460	352560	714020	35701
	29	21		38620	38620	361460	391180	752640	35840
	30	22		39760	39760	361460	430940	792400	36018
Sun	31	23		40030	40030	361460	470970	832430	36192

SA 067560

Totals #10 – #11 Machines .. October 1976

Date		Days Counted		Today: My	Today: Carbon Tissue	Today: Total	To Date: My	To Date: Carbon Tissue	To Date: Total	Daily Average
10	4		1	60160		60160	60160		60160	60160
	5		2	74770		74770	134930		134930	67465
	6		3	72640		72640	207570		207570	69190
	7		4	81350		81350	288920		288920	72230
	8		4	Sunday						
	9		4	"						
	11		5	64030		64030	352950		352950	70590
	12		6	52670		52670	405620		405620	67603
	13		7	71310		71310	476930		476930	68132
	14		8	61640		61640	538570		538570	67321
	15		9	60890		60890	599460		599460	66606
	16		10	42040	20880	62920	641500	20880	662380	66238
Sun	17		11	33830	39770	73600	675330	60650	735980	66907
	18		12	40910		40910	716240	60650	776890	64740
	19		13	51320	14980	66300	767560	75630	843190	64860
	20		14	13300	39070	52370	780860	114700	895560	63968
	21		15	30560	40410	70970	811420	155110	966530	64435
	22		16	37060	39870	76930	848480	194980	1043460	65216
	23		16	Sunday			848480	194980	1043460	65216
	25	#10 #11	16 17		35880	35880	848480	230860	1079340	65280
	26	#10 #11	17 18	42200	39550	81750	890680	270410	1161090	66233
	27	#10 #11	18 19	42060	42100	84160	932740	312510	1245250	67209
	28	#10 #11	19 20	38780	40050	78830	971520	352560	1324080	67809
	29	#10 #11	20 21	21830	38620	60450	993350	391180	1384530	67434
	30	#10 #11	21 22	42680	39760	82440	1036030	430940	1466970	68140
Sun	31	#10 #11	22 23	44080	40030	84110	1080110	470970	1551080	68557
					13	23				

SA 067561

#10 November 1976

Date	Days Worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
11 1	1	38870		38870	38870		38870	38870
2	2	35730		35730	74600		74600	37300
3	3	36160		36160	110760		110760	36920
4	4	20630		20630	131390		131390	32847
5	5	38920		38920	170310		170310	34062
6	5	Sunday						
8	6	38160		38160	208470		208470	34745
9	7	32690		32690	241160		241160	34451
10	8	37940		37940	279100		279100	34887
11	9	45600		45600	324700		324700	36077
12	10	45800		45800	370500		370500	37050
13	10	Sunday						
15	11	34640		34640	405140		405140	36830
16	12	38280		38280	443420		443420	36951
17	13	41880		41880	485300		485300	37330
18	14	33410		33410	518710		518710	37050
19	15	37630		37630	556340		556340	37089
20	16	40090		40090	596430		596430	37276
21	Sun 17	42140		42140	638570		638570	37562
22	18	44250		44250	682820		682820	37934
23	19	32670		32670	715490		715490	37657
24	20	36790		36790	752280		752280	37614
25	20	Holiday						
26	20	"						
27	20	"						

SA 067562

#11 November 1976

Date	Range number	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
11/1	1	23510		23510	23510		23510	23510
2	2	31130		31130	54640		54640	27320
3	3	34660		34660	89300		89300	29766
4	4	41100		41100	130400		130400	32600
5	5	35440		35440	165840		165840	33168
6	5	[illegible]						
8	6	35400		35400	201240		201240	33540
9	7	21160		21160	222400		222400	31771
10	8	37080		37080	259480		259480	32435
11	9	41460		41460	300940		300940	33437
12	10	39900		39900	340840		340840	34084
13	10	Sunday						
15	11		33310	33310	340840	33310	374150	34013
16	12		32040	32040	340840	65350	406190	33849
17	13	24780		24780	365620	65350	430970	33152
18	14	26860		26860	392480	65350	457830	32702
19	15	7750	18170	25920	400230	83520	483750	32250
20	16		40380	40380	400230	123900	524130	32758
Sun 21	17	8440	18660	27100	408670	142560	551230	32425
22	18	38180		38180	446850	142560	589410	32745
23	19	38040		38040	484890	142560	627450	33023
24	20	35800		35800	520690	142560	663250	3312
25	20	No Today						
26	20	"						
27	20	"						

SA 067563

Totals #10-#11 machines — November 1976

Date	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
11/1	1	62380		62380	62380		62380	62380
2	2	66860		66860	129240		129240	64620
3	3	70820		70820	200060		200060	66686
4	4	61730		61730	261790		261790	65447
5	5	74360		74360	336150		336150	67230
6	5	Sunday						
8	6	73560		73560	409710		409710	68285
9	7	53850		53850	463560		463560	66227
10	8	75020		75020	538580		538580	67322
11	9	87060		87060	625640		625640	69515
12	10	85700		85700	711340		711340	71134
13	10	Sunday						
15	11	34640	33310	67950	745980	33310	779290	70844
16	12	38280	32040	70320	784260	65350	849610	70800
17	13	66660		66660	850920	65350	916270	70482
18	14	60270		60270	911190	65350	976540	69752
19	15	45380	18170	63550	956570	83520	1040090	69339
20	16	40090	40380	80470	996660	123900	1120560	70035
Sun 21	17	50580	18660	69240	1047240	142560	1189800	69988
22	18	82430		82430	1129670	142560	1272230	70679
23	19	70710		70710	1200380	142560	1342940	70681
24	20	72590		72590	1272970	142560	1415530	70776
25	20	No today						
26	20	"						
27	20	"						

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SA 067564

#10 December 1976

Date	Days Worked	Today mf	Today Carton Issue	Today Total	To Date mf	To Date Carton Issue	To Date Total	Daily Average	Defective Paper
11 29	1	27170		27170	27170		27170	27170	1150
30	2	35300		35300	62470		62470	31235	3460
12 1	3	25400		25400	87870		87870	29290	11900
2	4	46620		46620	134490		134490	33622	500
3	5	45570		45570	180060		180060	36012	[illegible]
4	6	44680		44680	224740		224740	37456	[illegible]
5	7	38370		38370	263110		263110	37587	14[illegible]
6	8	35680		35680	298790		298790	37348	8560
7	9	29780		29780	328570		328570	36507	17910
8	10	32240		32240	360810		360810	36081	12710
9	11	33430		33430	394240		394240	35840	13[illegible]
10	12	22390		22390	416630		416630	34719	[illegible]
11	12	Down							
13	13	29520		29520	446150		446150	34319	15060
14	14	39810		39810	485960		485960	34711	2920
15	15	39200		39200	525160		525160	35010	5550
16	16	40730		40730	565890		565890	35368	4[illegible]
17	17	38530		38530	604420		604420	35554	9300
18	17	Down							
20	18	33400		33400	637820		637820	35434	[illegible]
21	19	21310		21310	659130		659130	34691	18540
22	20	40400		40400	699530		699530	34976	1[illegible]
23	21	38400		38400	737930		737930	35139	4540
24	21	Holiday							
25	21	"							
27	22	12300		12300	750230		750230	34101	8510
28	23	31290		31290	781520		781520	33979	[illegible]
29	24	36120		36120	817640		817640	[illegible]	[illegible]
30	25	38440		38440	856080		856080	34243	[illegible]

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#11 December 1976

...ective ...per	Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average	[illegible]
...0	11 29	2/3		16860	16860		16860	16860	16860	
...60	30	1 2/3		34140	34140		51000	51000	30573	
...20	12 1	2 2/3		32780	32780		83780	83780	[illegible]	
...0	2	3 2/3		36470	36470		120250	120250	[illegible]	
70	3	4 2/3		39120	39120		159370	159370	34147	
...50	4	5 2/3		40570	40570		[illegible]	199900	[illegible]	
...00	5	6 2/3		37480	37480		237440	237440	[illegible]	
...60	6	7 2/3		42760	42760		280200	[illegible]	[illegible]	
...910	7	8 2/3	27800	960	28760	27800	281160	308960	35647	
710	8	9 2/3	35160		35160	62960	281160	344120	35571	
...050	9	10 2/3	31910		31910	[illegible]	281160	[illegible]	[illegible]	
340	10	11 2/3	32370		32370	[illegible]	281160	[illegible]	[illegible]	
	11	11 2/3	Down							
5060	13	12 2/3		35380	35380	127240	316540	[illegible]	[illegible]	[illegible]
...920	14	13 2/3		36670	36670	[illegible]	353210	480450	[illegible]	[illegible]
...550	15	14 2/3	32500		32500	157740	353210	512750	[illegible]	[illegible]
...290	16	15 2/3	44840		44840	204580	353210	557770	[illegible]	
...300	17	16 2/3	43340		43340	247920	353210	601130	[illegible]	[illegible]
	18	16 2/3	Down							
...800	20	17 2/3	35700		35700	[illegible]	353210	[illegible]	[illegible]	
18540	21	18 2/3	47260		47260	330880	353210	684090	36647	[illegible]
10440	22	19 2/3	45040		45040	375920	353210	729130	37073	[illegible]
...540	23	20 2/3	40100		40100	416020	353210	769230	37220	[illegible]
	24	20 2/3	Holiday							
	25	20 2/3	"							
8510	27	21 2/3	25030		25030	441050	353210	[illegible]	36657	[illegible]
3020	28	22 2/3	33580		33580	474630	353210	827840	36521	
3680	29	23 2/3	31220		31220	[illegible]	353210	859060	[illegible]	
...2920	30	24 2/3	28480		28480	534330	353210	887540	[illegible]	
195690										

SA 067566

Totals #10 - #11 Machines December 1976

Date	Days worked		Today: mf	Today: Carbon Tissue	Today: Total	To Date: mf	To Date: Carbon Tissue	To Date: Total	Daily Average
11 29	#10 #11	1 2/3	27170	16860	44030	27170	16860	44030	44030
30	#10 #11	2 1 2/3	35300	34140	69440	62470	51000	113470	61828
12 1	#10 #11	3 2 2/3	25400	32780	58180	87870	83780	171650	60703
2	#10 #11	4 3 2/3	46620	36470	83090	134490	120250	254740	66414
3	#10 #11	5 4 2/3	45570	39120	84690	180060	159370	339430	70160
4	#10 #11	6 5 2/3	44680	40590	85270	224740	199960	424700	72740
5	#10 #11	7 6 2/3	38370	37480	75850	263110	237440	500550	73201
6	#10 #11	8 7 2/3	35680	42760	78440	298790	280200	578990	73894
7	#10 #11	9 8 2/3	57580	960	58540	356370	281160	637530	72154
8	#10 #11	10 9 2/3	67400		67400	423770	281160	704930	71678
9	#10 #11	11 10 2/3	65340		65340	489110	281160	770270	71091
10	#10 #11	12 11 2/3	54760		54760	543870	281160	825030	69723
11	#10 #11	12 11 2/3	Down						
13	#10 #11	13 12 2/3	29520	35380	64900	573390	316540	889930	69353
14	#10 #11	14 13 2/3	39810	36670	76480	613200	353210	966410	69865
15	#10 #11	15 14 2/3	71700		71700	684900	353210	1038110	69983
16	#10 #11	16 15 2/3	85570		85570	770470	353210	1123680	70970
17	#10 #11	17 16 2/3	81870		81870	852340	353210	1205550	71621
18	#10 #11	17 16 2/3	Down						
20	#10 #11	18 17 2/3	69100		69100	921440	353210	1274650	71480
21	#10 #11	19 18 2/3	68570		68570	990010	353210	1343220	71338
22	#10 #11	20 19 2/3	85440		85440	1075450	353210	1428660	72049
23	#10 #11	21 20 2/3	78500		78500	1153950	353210	1507160	72359
24	#10 21 #11 20 2/3		Holiday						
25	"		"						
27	#10 #11	22 21 2/3	37330		37330	1191280	353210	1544490	70758
28	#10 #11	23 22 2/3	64870		64870	1256150	353210	1609360	70500
29	#10 #11	24 23 2/3	67340		67340	1323490	353210	1676700	70365
30	#10 #1	25 24 2/3	66920		66920	1390410	353210	1743620	70223

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SA 067567

#10 January 1977

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
13	1	39070		39070	39070		39070	39070
4	2	42030		42030	81100		81100	40550
5	3	33560		33560	114660		114660	38220
6	4	38750		38750	153410		153410	38352
7	5	35420		35420	188830		188830	37766
8	6	41360		41360	230190		230190	38365
9	7	40600		40600	270790		270790	38684
10	8	29030		29030	299820		299820	37477
11	9	35060		29030	334880		334880	37208
12	10	18220		18220	353100		353100	35310
13	11	36610		36610	389710		389710	35428
14	12	36440		36440	426150		426150	35512
17	13	27800		27800	453950		453950	34919
18	14	29520		29520	483470		483470	34533
19	15	32230		32230	515700		515700	34380
20	16	30160		30160	545860		545860	34116
21	17	33900		33900	579760		579760	34103
22	18	15380		15380	595140		595140	33063
23	19	37680		37680	632820		632820	33306
24	20	35390		35390	668210		668210	33410
25	21	47520		47520	715730		715730	34082
26	22	50610		50610	766340		766340	34833
27	23	49550		49550	815890		815890	35473
28	24	47600		47600	863490		863490	35978

SA 067568

#11 January 1977

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	To Date Daily Average
1 3	1		24240	24240		24240	24240	24240
4	2		29580	29580		53820	53820	26910
5	3		44240	44240		98060	98060	32686
6	4		43160	43160		141220	141220	35305
7	5		27450	27450		168670	168670	[illegible]
8	6		41720	41720		[illegible]	210510	[illegible]
9	7		37800	37800		[illegible]	[illegible]	[illegible]
10	7 2/3		13050	13050		261440	261440	[illegible]
11	8 2/3		41520	41520		302960	302960	[illegible]
12	9 2/3	32270	540	32810	32270	303500	335770	[illegible]
13	10 2/3	33980		33980	66250	303500	[illegible]	[illegible]
14	11 2/3	35370		35370	101620	303500	[illegible]	[illegible]
17	12 2/3	37960		37960	[illegible]	[illegible]	[illegible]	[illegible]
18	13 2/3	40560		40560	180140	303500	483640	[illegible]
19	14 2/3	40680		40680	220820	303500	[illegible]	35748
20	15 2/3		30710	30710	220820	334210	555030	35426
21	16 2/3		39020	39020	220820	[illegible]	594050	35642
22	17 2/3		40880	40880	220820	414110	634930	35938
23	18 2/3		24380	24380	220820	438490	659310	[illegible]
24	19 2/3		44220	44220	220820	482710	[illegible]	[illegible]
25	20 2/3		37320	37320	220820	520030	740850	35847
26	21 2/3		40450	40450	220820	560480	781300	36059
27	22 2/3		42790	42790	220820	603270	824090	36356
28	23 2/3		34900	34900	220820	638170	858990	36294

SA 067569

Totals #10-#11 Machines

January 1977

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
13	1	39070	24240	63310	39070	24240	63310	63310
4	2	42030	29580	71610	81100	53820	134920	67460
5	3	33560	44240	77800	114660	98060	212720	70906
6	4	38750	43160	81910	153410	141220	294630	73657
7	5	35420	27450	62870	188830	168670	357500	71500
8	6	41360	41920	83280	230190	210590	440780	73463
9	7	40600	37800	78400	270790	248390	519180	74168
10	#10 8 / #11 7 2/3	29030	13050	42080	299820	261440	561260	71576
11	#10 9 / #11 8 2/3	35060	41520	76580	334880	302960	637840	68547
12	#10 10 / #11 9 2/3	50490	540	51030	385370	303500	688870	70043
13	#10 11 / #11 10 2/3	70590		70590	455960	303500	759460	70090
14	#10 12 / #11 11 2/3	71810		71810	527770	303500	831270	70235
17	#10 13 / #11 12 2/3	65760		65760	593530	303500	897030	69898
18	#10 14 / #11 13 2/3	70080		70080	663610	303500	967110	69920
19	#10 15 / #11 14 2/3	72910		72910	736520	303500	1040020	70128
20	#10 16 / #11 15 2/3	30160	30710	60870	766680	334210	1100890	69542
21	#10 17 / #11 16 2/3	33900	39020	72920	800580	373230	1173810	69745
22	#10 18 / #11 17 2/3	15380	40880	56260	815960	414110	1230070	69001
23	#10 19 / #11 18 2/3	37680	24380	62060	853640	438490	1292130	68625
24	#10 20 / #11 19 2/3	35370	44220	79610	889030	482710	1371740	69182
25	#10 21 / #11 20 2/3	47520	37320	84840	936550	520030	1456580	69929
26	#10 22 / #11 21 2/3	50610	40450	91060	987160	560480	1547640	70892
27	#10 23 / #11 22 2/3	49550	42790	92340	1036710	603270	1639980	71829
28	#10 24 / #11 23 2/3	47600	34900	82500	1084310	638170	1722480	72272
			19	24				

SA 067570

#10 February 1977

Date	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
31	1	38980		38980	38980		38980	38980
21	2	44920		44920	83900		83900	41950
2	3	26020		26020	109920		109920	36640
3	4	29230		29230	139150		139150	34787
4	5	38680		38680	177830		177830	35566
5	6	42200		42200	220030		220030	36671
6	7	33820		33820	253850		253850	36264
7	8	36890		36890	290740		290740	36342
8	9	34670		34670	325410		325410	36156
9	10	36170		36170	361580		361580	36158
10	11	38160		38160	399740		399740	36340
11	12	37000		37000	436740		436740	36395
14	13	30870		30870	467610		467610	35970
15	14	30470		30470	498080		498080	35577
16	15	41670		41670	539750		539750	35983
17	16	40900		40900	580650		580650	36290
18	17	38240		38240	618890		618890	36405
19	18	46360		46360	665250		665250	36958
20	19	36160		36160	701410		701410	36916
21	20	30380		30380	731790		731790	36589
22	21	38500		38500	770290		770290	36680
23	22	33240		33240	803530		803530	36524
24	23	39230		39230	842760		842760	36641
25	24	34920		34920	877680		877680	36570

Date
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#11. February 1977

Date	Days worked	Today my	Today Carbon Tonnes	Today Total	To Date my	To Date Carbon Tonnes	To Date Total	Daily Average
1/31	1	30960		30960	30960		30960	30960
2/1	2	5310	25990	31300	36270	25990	62260	31130
2	3		35950	35950	36270	61940	98210	32736
3	4	44840		44840	81110	61940	143050	35762
4	5	44920		44920	126030	61940	187970	37594
5	6		38680	38680	126030	100620	226650	37775
6	7		42080	42080	126030	142700	268730	38390
7	8		37070	37070	126030	179770	305800	38225
8	9		41370	41370	126030	221140	347170	38574
9	10	2080	38080	40160	128110	259220	387330	38733
10	11	37680		37680	165790	259220	425010	38637
11	12	35380		35380	201170	259220	460390	38365
14	13	29010		29010	230180	259220	489400	37646
15	14	46010		46010	276190	259220	535410	38243
16	15	33940		33940	310130	259220	569350	37956
17	16	45760		45760	355890	259220	615110	38444
18	17	44340		44340	400230	259220	659450	38791
19	18	5180	33530	38710	405410	292750	698160	38786
20	19		38750	38750	405410	331500	736910	38784
21	20		42930	42930	405410	374430	779840	38992
22	21		44300	44300	405410	418730	824140	39244
23	22		39030	39030	405410	457760	863170	39235
24	23		38760	38760	405410	496520	901930	39214
25	24		41950	41950	405410	538470	943880	39328

Totals #10 - #11 Machines February 1977

Date	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
31	1	69940		69940	69940		69940	69940
21	2	50230	25990	76220	120170	25990	146160	73080
2	3	26020	35950	61970	146190	61940	208130	69376
3	4	74070		74070	220260	61940	282200	70550
4	5	83600		83600	303860	61940	365800	73160
5	6	42200	38680	80880	[illegible]	100620	446680	[illegible]
6	7	33820	42050	75900	379860	142700	522560	[illegible]
7	8	36890	37070	73960	416770	179770	596540	74567
8	9	34670	41370	76040	451440	221140	672580	74731
9	10	38250	38080	76330	489690	259220	748910	74891
10	11	75840		75840	565530	259220	824750	74977
11	12	72380		72380	637910	259220	897130	74760
14	13	59880		59880	697790	259220	957010	73616
15	14	76480		76480	774270	259220	1033490	73820
16	15	75610		75610	849880	259220	1109100	73940
17	16	86660		86660	936540	259220	1195760	74735
18	17	82580		82580	1019120	259220	1278340	75196
19	18	51540	33530	85070	1070660	292750	1363410	75745
20	19	36160	38750	74910	1106820	331500	1438320	75701
21	20	30380	42930	73310	1137200	374430	1511630	75581
22	21	38500	44300	82800	1175700	418730	1594430	75925
23	22	33240	39030	72270	1208940	457760	1666700	75759
24	23	39230	38760	77990	1248170	496520	1744690	75866
25	24	34920	41950	76870	1282090	538470	1821560	75898

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SA 867573

#10 March 1977

	Today				To Date			
Date	Days worked	mf	Carbon Tissue	Total	mf	Carbon Tissue	Total	Daily Average
2 28	1	19200		19200	19200		19200	19200
31	2	31680		31680	50880		50880	25440
2	3	25770		25770	76650		76650	25550
3	4	40190		40190	116840		116840	29210
4	5	23960		23960	140800		140800	28160
5	6	30540		30540	171340		171340	28556
6	7	39770		39770	211110		211110	30158
7	8	45960		45960	257070		257070	32133
8	9	46550		46550	303620		303620	33735
9	10	27470		27470	331090		331090	33109
10	11	42470		42470	373560		373560	33960
11	12	40250		40250	413810		413810	34484
12	13	[illegible]						
14	13	19500		19500	433310		433310	33331
15	14	32610		32610	465920		465920	33280
16	15	38160		38160	504080		504080	33605
17	16	45190		45190	549270		549270	34329
18	17	43730		43730	593000		593000	34882
19	18	[illegible]						
21	19	26720		26720	619720		619720	34428
22	19	42530		42530	662250		662250	34855
23	20	32980		32980	695230		695230	34761
24	21	39190		39190	734420		734420	34972
25	22	44900		44900	779320		779320	35423
26	23	[illegible]						
28	23	40330		40330	819650		819650	35636
29	24	42660		42660	862310		862310	35929
30	25	5480		5480	867790		867790	34711
31	26	37290		37290	905080		905080	34810
4 1	27	40090		40090	945170		945170	35006

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#11 March 1977

Date	Days worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
2 28	1		12640	12640		12640	12640	12640
3 1	2		43060	43060		55700	55700	27850
2	3		40430	40430		96130	96130	32043
3	4		43270	43270		139400	139400	34850
4	5	44440	34140	38580	44440	173540	177980	35596
5	6		40930	40930	44440	214470	218910	36485
Sun 6	7	7780	32340	40120	[illegible]	[illegible]	[illegible]	[illegible]
7	8	47060		47060	59220	246710	305930	38241
8	9	48680		48680	107900	246710	354670	39407
9	10	49140		49140	157100	246710	403810	40381
10	11	47360		47360	204460	246710	451170	41015
11	12	46760		46760	251220	246710	497930	41494
12	13	Sunday						
14	13	38020		38020	289240	246710	535950	41220
15	14	43380		43380	332620	246710	579330	41380
16	15	15190	16730	31920	347810	263440	611250	40750
17	16		41120	41120	347810	304560	652370	40773
18	17		42250	42250	347810	346810	694620	40860
19	17	Sunday						
21	18		2930	29300	347810	376110	723920	40217
22	19		42610	42610	347810	418720	766530	40343
23	20	3680	35900	39580	351490	454620	806110	40305
24	21	43980		43980	395470	454620	850090	40480
25	22	42580		42580	438050	454620	892670	40575
26	22	Sunday						
28	23	29800		29800	467850	454620	922470	40107
29	24	36190		36190	504040	454620	958660	39944
30	25	29520		29520	533560	454620	988180	39527
31	26		34190	34190	533560	488810	1022370	39321
4 1	27		43570	43570	533560	532380	1065940	39479

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Totals #10 - #11 Machines March 1977

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
3 28	1	19200	12640	31840	19200	12640	31840	31840
3 1	2	31680	43060	74740	50880	55700	106580	53290
2	3	25770	40430	66200	76650	96130	172780	57593
3	4	40190	43270	83460	116840	139400	256240	64060
4	5	28400	34140	62540	145240	173540	318780	63756
5	6	30540	40830	71370	175780	214370	390150	65025
Sun 6	7	47550	32340	79890	223330	246710	470040	67148
7	8	93020		93020	316350	246710	563060	70382
8	9	95230		95230	411580	246710	658290	73143
9	10	76610		76610	488190	246710	734900	73490
10	11	89830		89830	578020	246710	824730	74975
11	12	87010		87010	665030	246710	911740	75978
12	12	Down						
14	13	57520		57520	722550	246710	969260	74558
15	14	75990		75990	798540	246710	1045250	74660
16	15	53350	16730	70080	851890	263440	1115330	74355
17	16	45190	41120	86310	897080	304560	1201640	75102
18	17	43730	42250	85980	940810	346810	1287620	75742
19	17	Down						
21	18	26720	29300	56020	967530	376110	1343640	74646
22	19	42530	42610	85140	1010060	418720	1428780	75198
23	20	36660	35900	72560	1046720	454620	1501340	75067
24	21	83170		83170	1129890	454620	1584510	75452
25	22	87480		87480	1217370	454620	1671990	75999
26	22	Down						
28	23	70130		70130	1287500	454620	1742120	75744
29	24	78850		78850	1366350	454620	1820970	75873
30	25	35000		35000	1401350	454620	1855970	74238
31	26	37290	34190	71480	1438640	488810	1927450	74132
4 1	27	40090	43570	83660	1478730	532380	2011110	74485
			15	27				

[redacted]

SA 867576

#10 April 1977

Date	Days Worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	To Date Daily Average
4 4	1	38720		38720	38720		38720	38720
5	2	43860		43860	82580		82580	41290
6	3	51010		51010	133590		133590	44530
7	4	16250		16250	149840		149840	37460
8	4	Holiday						
9	4	Sunday						
11	5	22510		22510	172350		172350	34470
12	6	35720		35720	208070		208070	34678
13	7	28990		28990	237060		237060	33865
14	8	27220		27220	264280		264280	33035
15	9	51050		51050	315330		315330	35036
16	10	51120		51120	366450		366450	36645
Sun 17	11	48200		48200	414650		414650	37695
18	12	50750		50750	465400		465400	38783
19	13	38280		38280	503680		503680	38744
20	14	44890		44890	548570		548570	39183
21	15	40410		40410	588980		588980	39265
22	15	18120		18120	607100		607100	39594
23	15	Sunday						
25	16	24120		24120	631220		631220	39451
26	17	54000		54000	685220		685220	40307
27	18	46120		46120	731340		731340	40630
28	19	48670		48670	780010		780010	41053
29	20	44510		44510	824520		824520	41226
30	20	Sunday						

SA 867577

#11 April 1977

Date	Days worked	My	Today Carbon Issue	Today Total	My	To Date Carbon Issue	To Date Total	Daily Average
4 4	1		31400	31400		31400	31400	31400
5	2		40080	40080		71480	71480	35740
6	3		42370	42370		113850	113850	37950
7	4		34350	34350		148200	148200	37050
8	4	Holiday						
9	4	Sunday						
11	5		37600	37600		187800	187800	37560
12	6	18830	16630	35460	18830	204470	223300	37220
13	7	42740		42740	61570	204490	266060	38011
14	8	43160		43160	104730	204490	309220	38652
15	9	23810		23810	128540	204490	333030	37003
16	10	27370		27370	155910	204490	360400	36040
Sun 17	11	39670		39670	195580	204490	400070	36370
18	12	32540		32540	228120	204490	432610	36050
19	13	40110		40110	268230	204490	472720	36363
20	14	40560		40560	308790	204490	513280	36663
21	15	42170		42170	350960	204490	555450	37030
22	15 2/3	26120		26120	377080	204490	581570	37120
23	15 2/3	Down						
25	16 2/3	15720		15720	392800	204490	597290	35836
26	17 2/3	23850		23850	416650	204490	621140	35158
27	18 2/3	28580		28580	445230	204490	649720	34585
28	19 2/3	22880		22880	468110	204490	672600	34199
29	20 2/3		13540	13540	481650	204490	686140	33197
30	20 2/3	Down						

SA 867578

Totals #10 - #11 Machines April 1977

Date		Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
4	4	1	38720	31400	70120	38720	31400	70120	70120
	5	2	43860	40080	83940	82580	71480	154060	77030
	6	3	51010	42370	93380	133590	113850	247440	82480
	7	4	16250	34350	50600	149840	148200	298040	74510
	8	4	No Day						
	9	4	Down						
	11	5	22510	39660	62170	172350	187860	360210	72042
	12	6	54550	16630	71180	226900	204490	431390	71898
	13	7	71730		71730	298630	204490	503120	71874
	14	8	70380		70380	369010	204490	573500	71687
	15	9	74860		74860	443870	204490	648360	72040
	16	10	78490		78490	522360	204490	726850	72685
Sun	17	11	87870		87870	610230	204490	814720	74065
	18	12	83290		83290	693520	204490	898010	74834
	19	13	78390		78390	771910	204490	976400	75107
	20	14	85450		85450	857360	204490	1061850	75846
	21	15	82580		82580	939940	204490	1144430	76295
	22	#10 15 #11 15	44240		44240	984180	204490	1188670	76714
	23	#10 15 #11 15	Down						
	25	#10 16 #11 16 2/3	39840		39840	1024020	204490	1228510	75287
	26	#10 17 #11 17	77850		77850	1101870	204490	1306360	75465
	27	#10 18 #11 18	74700		74700	1176570	204490	1381060	75435
	28	#10 19 #11 19 2/3	71550		71550	1248120	204490	1452610	75252
	29	#10 20 #11 20	44310	13540	58050	1292630	218030	1510660	74105
	30	#10 20 #11 20 2/3							

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Totals #10 - #11 Machines April 1977

Date		Days worked		Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
4	4		1	38720	31400	70120	38720	31400	70120	70120
	5		2	43860	40080	83940	82580	71480	154060	77030
	6		3	51010	42370	93380	133590	113850	247440	82480
	7		4	16250	34350	50600	149840	148200	298040	74510
	8		4	Holiday						
	9		4	Down						
	11		5	22510	39660	62170	172350	187860	360210	72042
	12		6	54550	16630	71180	226900	204490	431390	71898
	13		7	71730		71730	298630	204490	503120	71874
	14		8	70380		70380	369010	204490	573500	71687
	15		9	74860		74860	443870	204490	648360	72040
	16		10	78490		78490	522360	204490	726850	72685
Sun	17		11	87870		87870	610230	204490	814720	74065
	18		12	83290		83290	693520	204490	898010	74834
	19		13	78390		78390	771910	204490	976400	75107
	20		14	85450		85450	857360	204490	1061850	75846
	21		15	82580		82580	939940	204490	1144430	76295
	22	#10 #11	15 1/3 15 2/3	44240		44240	984180	204490	1188670	76714
	23	#10 #11	15 1/3 15 2/3	Down						
	25	#10 #11	16 16 2/3	39840		39840	1024020	204490	1228510	75287
	26	#10 #11	17 17 2/3	77850		77850	1101870	204490	1306360	75465
	27	#10 #11	18 18 2/3	74700		74700	1176570	204490	1381060	75435
	28	#10 #11	19 19 2/3	71550		71550	1248120	204490	1452610	75252
	29	#10 #11	20 20 2/3	44510	13540	58050	1292630	218030	1510660	74425
	30	#10 #11	20 20 2/3							

SA 067581

#10 May 1977

Date	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
2	1	43270		43270	43270		43270	43270
3	2	51800		51800	95070		95070	47535
4	3	49970		49970	145040		145040	48346
5	4	49600		49600	194640		194640	48660
6	5	[illegible]		[illegible]	[illegible]		[illegible]	44910
7	5	Sunday						
9	6	32600		32600	257240		257240	42873
10	7	21410		21410	278650		278650	39807
11	7½	18000		18000	296650		296650	39553
12	7½	Sunday			296650		296650	39553
13	7½	"			296650		296650	39553
14	7½	"			296650		296650	39553
16	8½	26290		26290	322940		322940	38754
17	9½	23330		23330	346270		346270	37101
18	10	27970		27970	374240		374240	37424
19	10	Sunday			374240		374240	37424
20	10	"			374240		374240	37424
21	10½	10680		10680	384920		384920	36085
22	11½	35480		35480	420400		420400	36033
23	12½	45100		45100	465500		465500	36749
24	13½	45080		45080	510580		510580	37358
25	14½	46140		46140	556720		556720	37957
26	15½	31220		31220	587940		587940	37527
27	15½	Sunday			587940		587940	37527

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067582

#10 May 1977

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
52	1	43270		43270	43270		43270	43270
3	2	51800		51800	95070		95070	47535
4	3	49970		49970	145040		145040	48346
5	4	49600		49600	194640		194640	48660
6	5	29910		29910	224550		224550	44910
7	5	Sunday						
9	6	32690		32690	257240		257240	42873
10	7	21410		21410	278650		278650	39807
11	7½	18000		18000	296650		296650	39553
12	7½	Sunday			296650		296650	39553
13	7½	"			296650		296650	39553
14	7½	"			296650		296650	39553
16	8½	26290		26290	322940		322940	38754
17	9½	23330		23330	346270		346270	37101
18	10	27970		27970	374240		374240	37424
19	10	Sunday			374240		374240	37424
20	10	"			374240		374240	37424
21	10½	10680		10680	384920		384920	36685
22	11½	35480		35480	420400		420400	36033
23	12½	45100		45100	465500		465500	36749
24	13½	45080		45080	510580		510580	37358
25	14½	46140		46140	556720		556720	37957
26	15½	31220		31220	587940		587940	37527
27	15½	Sunday			587940		587940	37527

SA 867583

#11 May 1977

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily average
52		Down						
3	2/3	27800		27800	27800		27800	[illegible]
4	1 2/3	44500		44500	72300		72300	43371
5	2 2/3	42140		[illegible]	114440		[illegible]	[illegible]
6	3 2/3	15300		15300	[illegible]		[illegible]	[illegible]
7	3 2/3	Down						
9	4 2/3		31290	31290	129740	31290	[illegible]	[illegible]
10	5		13600	13600	129740	44890	174630	[illegible]
11	6		40700	40700	129740	85590	215330	35888
12	7		40170	40170	129740	125760	255500	[illegible]
13	8		35090	35090	129740	160850	290590	36323
14	8	Down			129740	[illegible]	[illegible]	[illegible]
16	9		36790	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
17	10		39340	39340	[illegible]	236750	[illegible]	[illegible]
18	11		38380	38380	129740	275360	405100	36827
19	12		35760	35760	129740	311120	440860	[illegible]
20	13		33770	33770	129740	344890	474630	36510
21	14	34790	6280	41070	164530	351170	[illegible]	36835
22	15	45910		45910	210440	351170	561610	[illegible]
23	16	40300		40300	[illegible]	[illegible]	[illegible]	[illegible]
24	17	45760		45760	296500	351170	647670	[illegible]
25	18	28560		28560	325060	351170	676230	37565
26	19	49280		49280	374340	351170	725510	38184
27	20	37210		37210	411550	351170	762720	38136

SA 067584

Totals #10-#11 Machines May 1977

Date	Days worked		Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
52	#10 #11	1 –	43270		43270	43270		43270	43270
3	#10 #11	2 2/3	79600		79600	122870		122870	75335
4	#10 #11	3 1 2/3	94470		94470	217340		217340	91717
5	#10 #11	4 2 2/3	91740		91740	309080		309080	91569
6	#10 #11	5 3 2/3	45210		45210	354290		354290	80290
7	#10 #11	6 3 2/3	Down						
9	#10 #11	6 4 2/3	32690	31290	63980	386980	31290	418270	77376
10	#10 #11	7 5	21410	13600	35010	408390	44890	453280	74733
11	#10 #11	7 1/2 6	18000	40700	58700	426390	85590	511980	75441
12	#10 #11	7 1/2 7		40170	40170	426390	125760	552150	76053
13	#10 #11	7 1/2 8		35090	35090	426390	160850	587240	75876
14	#10 #11	7 1/2 8	Down			426390	160850	587240	75876
16	#10 #11	8 1/3 9	26290	36790	63080	452680	197640	650320	75129
17	#10 #11	9 1/3 10	23330	39340	62670	476010	236980	712990	73773
18	#10 #11	10 11	27970	38380	66350	503980	275360	779340	74251
19	#10 #11	10 12		35760	35760	503980	311120	815100	74162
20	#10 #11	10 13		33770	33770	503980	344890	848870	73934
21	#10 #11	10 2/3 14	45470	6280	51750	549450	351170	900620	72920
22	#10 #11	11 2/3 15	81390		81390	630840	351170	982010	73473
23	#10 #11	12 2/3 16	85400		85400	716240	351170	1067410	74368
24	#10 #11	13 2/3 17	90840		90840	807080	351170	1158250	75456
25	#10 #11	14 2/3 18	74700		74700	881780	351170	1232950	75525
26	#10 #11	15 2/3 19	80500		80500	962280	351170	1313450	75711
27	#10 #11	15 2/3 20	37210		37210	999490	351170	1350660	75663

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[redacted]

SA 067585

#10 June 1977

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
5 30		[illegible]						
31	2/3	20770		20770	20770		20770	—
6 1	1 2/3	39370		39370	60140		60140	36076
2	2 2/3	43340		43340	103480		103480	38800
3	3 2/3	38940		38940	142420		142420	38838
4	3 2/3	[illegible]						
6	4 2/3	38600		38600	181020		181020	38787
7	5 2/3	47640		47640	228660		228660	40349
8	6 2/3	41640		41640	270300		270300	40542
9	7 2/3	35480		35480	305780		305780	39882
10	8 2/3	32160		32160	337940		337940	38991
11	8 2/3	Down						
13	9 2/3	33800		33800	371740		371740	38454
14	10 2/3	39020		39020	410760		410760	38507
15	11 2/3	43230		43230	453990		453990	38912
16	12 2/3	43340		43340	497330		497330	39261
17	13 2/3	33530		33530	530860		530860	38842
18	13 2/3	Down						
20	14 2/3	28730		28730	559590		559590	38152
21	15 2/3	44110		44110	603700		603700	38533
22	16 2/3	46590		46590	650290		650290	39016
23	17 2/3	44590		44590	694880		694880	39332
24	18 2/3	45570		45570	740450		740450	39666
25	19 2/3	[illegible]		[illegible]	784020		784020	39864
Sun 26	[illegible]	38730		38730	822750		822750	39809
27	21 2/3	40230		[illegible]	862980		862980	39829
28	22 2/3	38540		38540	901520		901520	39772
29	23 2/3	42150		42150	943670		943670	39872
30	24 2/3	43090		43090	986760		986760	40003

SA 067586

#11 June 1977

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
5 30		Holiday						
31	1	42870		42870	42870		42870	42870
6 1	2	40540		40540	83410		83410	41705
2	3	14380	15960	30340	97790	15960	113750	37916
3	4		30730	30730	97790	46690	144480	36120
4	4	[illegible]						
6	5		32790	32790	97790	79680	177470	35494
7	6		36400	36400	97790	116080	213870	35645
8	7		37850	37850	97790	153930	251720	35760
9	8		41380	41380	97790	195310	293100	36637
10	9		39660	39660	97790	234970	332760	36973
11	9		Down					
13	10	21320		21320	119110	234970	354080	35408
14	11	8010	26640	34650	127120	261610	388730	35339
15	12		34100	34100	127120	295710	422830	35235
16	13		39630	39630	127120	335340	462460	35573
17	14		39540	39540	127120	374880	502000	35857
18	14	Down						
20	15		31910	31910	127120	406790	533910	35594
21	16		43630	43630	127120	450420	577540	36096
22	17	14350	6040	20390	141470	456460	597930	35172
23	18	21730		21730	163200	456460	619660	34475
24	19	29920		29920	193120	456460	649580	34188
25	20	33410		33410	226530	456460	682990	34149
Sun 26	21	38660		38660	265190	456460	721650	34364
27	22	41660		41660	306850	456460	763310	34695
28	23	30480		30480	337330	456460	793790	34512
29	24	43440		43440	380770	456460	837230	34884
30	25	42580		42580	423350	456460	879810	35192

SA 067587

Totals #10-#11 Machines June 1977

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
5 30		Holiday						
31	#10 2/3 #11 1	63640		63640	63640		63640	—
6 1	#10 1 2/3 #11 2	79910		79910	143550		143550	77781
2	#10 2 2/3 #11 3	57720	15960	73680	201270	15960	217230	76716
3	#10 3 2/3 #11 4	38940	30730	69670	240210	46690	286900	74958
4	#10 3 2/3 #11 4	Down						
6	#10 4 2/3 #11 5	38600	32990	71590	278810	79680	358490	74281
7	#10 5 2/3 #11 6	47640	36400	84040	326450	116080	442530	75994
8	#10 6 2/3 #11 7	41640	37850	79490	368090	153930	522020	76502
9	#10 7 2/3 #11 8	35480	41380	76860	403570	195310	598880	76519
10	#10 8 2/3 #11 9	32160	39660	71820	435730	234970	670700	75964
11	#10 8 2/3 #11 9	Down						
13	#10 9 2/3 #11 10	55120		55120	490850	234970	725820	73862
14	#10 10 2/3 #11 11	47030	26640	73670	537880	261610	799490	73846
15	#10 11 2/3 #11 12	43230	34100	77330	581110	295710	876820	74147
16	#10 12 2/3 #11 13	43340	39630	82970	624450	335340	959790	74834
17	#10 13 2/3 #11 14	33530	39540	73070	657980	374880	1032860	74699
18	#10 13 2/3 #11 14	Down						
20	#10 14 2/3 #11 15	28730	31910	60640	686710	406790	1093500	73746
21	#10 15 2/3 #11 16	44110	43630	87740	730820	450420	1181240	74629
22	#10 16 2/3 #11 17	60940	6040	66980	791760	456460	1248220	74188
23	#10 17 2/3 #11 18	66320		66320	858080	456460	1314540	73757
24	#10 18 2/3 #11 19	75490		75490	933570	456460	1390030	73854
25	#10 19 2/3 #11 20	76980		76980	1010550	456460	1467010	74013
Jun 26	#10 20 2/3 #11 21	77390		77390	1087940	456460	1544400	74173
27	#10 21 2/3 #11 22	81890		81890	1169830	456460	1626290	74524
28	#10 22 2/3 #11 23	69020		69020	1238850	456460	1695310	74284
29	#10 23 2/3 #11 24	85590		85590	1324440	456460	1780900	74756
30	#10 24 2/3 #11 25	85670		85670	1410110	456460	1866570	75195
			14	25				

SA 067588

#10 July 1977

Date	Days Worked		Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
7 1		1	40820		40820	40820		40820	40820
2		1	Down						
4		1	Holiday						
5		1	"						
6		2	35560		35560	76380		76380	38190
7		2	27350		27350	103730		103730	38893
8		3	40930		40930	144660		144660	39449
9		4	37880		37880	182540		182540	39112
11		4	4260		4260	186800		186800	40025
12		5	37055		37055	223855		223855	39501
13		6	41230		41230	265085		265085	39760
14		7	47420		47420	312505		312505	40759
15		8	42340		42340	354845		354845	40942
16		9	41510		41510	396355		396355	41000
18		10	34785		34785	431140		431140	40418
19		11	42400		42400	473540		473540	40587
20		12	46810		46810	520350		520350	41579
21		13	34550		34550	554900		554900	40601
22		14	47220		47220	602120		602120	41052
23		14	Down						
25		15	7330		7330	609450		609450	38900
26		16	21400		21400	630850		630850	37850
27		16	Strike						
28		16	"						
29		16	"						
30		16	"						

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#11 July 1977

		Today				To Date			
Date	Days Worked	MT	Carbon Issue	Total		MT	Carbon Issue	Total	Daily Average
1	1	40580		40580		40580		40580	[illegible]
2	1	Holiday							
4	1	Holiday							
5	1	"							
6	2	37500		37500		[illegible]		[illegible]	[illegible]
7	3	46400		[illegible]		[illegible]		[illegible]	[illegible]
8	4	24830		24830		149310		149310	37327
9	5	34720		34720		184030		184030	36806
11	6	26600		26600		210630		210630	35105
12	7	23450		23450		234080		234080	33440
13	8	6340	21040	27380		240420	21040	261460	32682
14	9		35610	35610		240420	56650	297070	33007
15	10		41570	41570		240420	98220	338640	[illegible]
16	11		39340	39340		240420	137540	377960	[illegible]
18	12		32640	32640		240420	170180	410600	34216
19	13		32200	32200		240420	202380	442800	34061
20	14		27080	27080		240420	229460	469880	33562
21	15		27290	27290		240420	256750	497170	33144
22	16		29300	29300		240420	286050	526470	32904
23	16	Down							
25	17	24060		24060		264480	286050	550530	32384
26	18	15580		15580		280060	286050	566110	31450
27	18	Strike							
28	18	"							
29	18	"							
30	18	"							

SA 067590

Totals #10 - #11 Machines July 1977

Date	Days Worked		Today My	Today Carbon Frame	Today Total	To Date My	To Date Carbon Frame	To Date Total	Daily average
7 1		1	81400		81400	81400		81400	81400
2		1	Down						
4		1	Holiday						
5		1	"						
6		2	73060		73060	154460		154460	77230
7	#10 3 2/3 #11 3		73750		73750	228210		228210	80386
8	#10 3 2/3 #11 4		65760		65760	293970		293970	76776
9	#10 4 2/3 #11 5		72600		72600	366570		366570	75918
10	#10 4 2/3 #11 6		30860		30860	397430		397430	75130
12	#10 5 2/3 #11 7		60505		60505	457935		457935	72941
13	#10 6 2/3 #11 8		47570	21040	68610	505505	21040	526545	72442
14	#10 7 2/3 #11 9		47420	35610	83030	552925	56650	609575	73766
15	#10 8 2/3 #11 10		42340	41570	83910	595265	98220	693485	74806
16	#10 9 2/3 #11 11		41510	39320	80830	636775	137540	774315	75360
18	#10 10 2/3 #11 12		34785	32640	67425	671560	170180	841740	74634
19	#10 11 2/3 #11 13		42400	32200	74600	713960	202380	916340	74648
20	#10 12 2/3 #11 14		46810	27080	73890	760770	229460	990230	74641
21	#10 13 2/3 #11 15		34550	27290	61840	795320	256750	1052070	73745
22	#10 14 2/3 #11 16		47220	29300	76520	842540	286050	1128590	73956
23	#10 14 2/3 #11 16		Down						
25	#10 15 2/3 #11 17		31390		31390	873930	286050	1159980	71284
26	#10 16 2/3 #11 18		36980		36980	910910	286050	1196960	69300
27	#10 16 2/3 #11 18		Strike						
28	#10 16 2/3 #11 18		"						
29	#10 16 2/3 #11 18		"						
30	#10 16 2/3 #11 18		"	9	18				

SA 067591

#10 August 1977

Date	Days Worked		Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
8/1			Strike						
2		1	23610		23610	23610		23610	23610
3		2	33960		33960	57570		57570	28785
4		3	47880		47880	105450		105450	35150
5		4	44930		44930	150380		150380	37595
6		5	39680		39680	190060		190060	38012
7		6	24730		24730	214790		214790	35798
8		7	46600		46600	261390		261390	37341
9		8	24030		24030	285420		285420	35677
10		9	45240		45240	330660		330660	36746
11		9 1/3	6670		6670	337330		337330	36143
12	80	9 2/3	5300		5300	342630		342630	36711
13		10 2/3	26090		26090	368720		368720	35683
15		11 2/3	39890		39890	408610		408610	36054
16		12 2/3	50250		50250	458860		458860	37205
17		13 2/3	47360		47360	506220		506220	37967
18		14 2/3	35060		35060	541280		541280	37764
19		15 2/3	33160		33160	574440		574440	37464
20		16 2/3	28460		28460	602900		602900	36912
21		17 2/3	42640		42640	645540		645540	37243
22		18 2/3	10330		10330	655870		655870	35775
23		18 2/3	8300		8300	664170		664170	35579
24		19	Machine Down			664170		664170	35579
25		[illegible]	[illegible]		[illegible]	697130		697130	34856
26		[illegible]	34900		34900	726430		726430	34591
27		22	31840		31840	758270		758270	34466

SA 067592

#11 August 1977

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	To Date Daily Average
81		Strike						
2	1	26200		26200	[illegible]		[illegible]	[illegible]
3	2	30340		30340	56540		565[illegible]	28270
4	3	32990		32990	89530		89[illegible]	29843
5	4	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]
6	5	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]
7	6	[illegible]		38480	[illegible]		[illegible]	[illegible]
8	7	21040	10360	31400	225690	10360	236050	33721
9	8		38040	38040	225690	48400	274090	34261
10	9		37160	37160	225690	85560	311250	34583
11	10		37970	37970	225690	123530	349220	34922
12	11		33700	33700	225690	157230	382920	34810
13	12		31460	31460	225690	188690	414380	34531
15	13	28730		28730	254420	188690	443110	34085
16	14	36720		36720	291140	188690	479830	34273
17	15	37890		37890	329030	188690	517720	34514
18	16	2140	23720	25860	331170	212410	543580	33973
19	17		38650	38650	331170	251060	582230	34248
20	18		40460	40460	331170	291520	622690	34593
21	19		36810	36810	331170	328330	659500	34710
22	20		37450	37450	331170	365780	696950	34848
23	21		37090	37090	331170	402870	734040	34954
24	22		35480	35480	331170	438350	769520	34978
25	23	24260		24260	355430	438350	793780	34512
26	24	38660		38660	394090	438350	832440	34685
27	25	31240		31240	425330	438350	863680	34547

SA 067593

Totals #10 - #11 Machines . August 1977

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
8 1		Strike						
2	1	49810		49810	49810		49810	49810
3	2	64300		64300	114110		114110	57055
4	3	80870		80870	194980		194980	64993
5	4	84050		84050	279030		279030	69757
6	5	77200		77200	356230		356230	71246
7	6	63210		63210	419440		419440	69906
8	7	67640	10360	78000	487080	10360	497440	71062
9	8	24030	38040	62070	511110	48400	559510	69938
10	9	45240	37160	82400	556350	85560	641910	71323
11	9 1/3	[illegible]	37970	44640	563020	123530	686550	71065
12	#10 9 1/3 #11 11	5300	33700	39000	568320	157230	725550	71521
13	#10 10 1/3 #11 12	26090	31460	57550	594410	188690	783100	70214
15	#10 11 1/3 #11 13	68620		68620	663030	188690	851720	70139
16	#10 12 1/3 #11 14	86970		86970	750000	188690	938690	71478
17	#10 13 1/3 #11 15	85250		85250	835250	188690	1023940	72481
18	#10 14 1/3 #11 16	37200	23720	60920	872450	212410	1084860	71737
19	#10 15 1/3 #11 17	33160	38650	71810	905610	251060	1156670	71712
20	#10 16 1/3 #11 18	28460	40460	68920	934070	291520	1225590	71505
21	#10 17 1/3 #11 19	42640	36810	79450	976710	328330	1305040	71953
22	#10 18 1/3 #11 20	10330	37450	47780	987040	365780	1352820	70623
23	#10 18 2/3 #11 21	8300	37090	45390	995340	402870	1398210	70533
24	#10 19 #11 22	—	35480	35480	995340	438350	1433690	70557
25	#10 20 #11 23	47220		47220	1042560	438350	1480910	68868
26	#10 21 #11 24	77960		77960	1123520	438350	1558870	69276
27	#10 22 #11 25	63080		63080	1183600	438350	1621950	69013

13 25

SA 067594

#10 September 1977.

Date	Days Worked		Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
8 29		1	31890		31890	31890		31890	31890
30		2	45490		45490	77380		77380	38690
31		3	42750		42750	120130		120130	40043
9 1		3½	30820		30820	150950		150950	41164
2		4	37680		37680	188630		188630	40417
3		4½	Sunday						
5		4¾	Holiday						
6		5½	45580		45580	234210		234210	41328
7		6½	47330		47330	281540		281540	42208
8		7½	45210		45210	326750		326750	42617
9		8½	51040		51040	377790		377790	43589
10		9½	50160		50160	427950		427950	44269
11		10½	42810		42810	470760		470760	44132
12		11½	43500		43500	514260		514260	44078
13		12½	45160		45160	559420		559420	44163
14		13½	45490		45490	604910		604910	44260
15		14½	31600		31600	636510		636510	43397
16		15½	20140		20140	656650		656650	41912
17		15½	Sunday						
19		16½	35980		35980	692630		692630	41556
20		17½	32520		32520	725150		725150	41045
21		18½	35460		35460	760610		760610	40746
22		19½	45960		45960	806570		806570	41011
23		20½	41070		41070	847640		847640	41014
24		20½	Sunday						
26		21½	40600		40600	888240		888240	40375
27		22½	23340		23340	911580		911580	40516
28		23½	28190		28190	939770		939770	39708
29		24½	40450		40450	980220		980220	39738
30		25½	44380		44380	1024600		1024600	39918
10 1		26½	42680		42680	1067280		1067280	40[illegible]

SA 067595

#11 September 1977

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
8 29	1	30820		30820	30820		30820	30820
30	2	41100		41100	71920		71920	35760
31	3	36870		36870	108790		108790	[illegible]
9 1	3 2/3	24380		24380	133170		133170	36515
2	4 2/3	37360		37360	[illegible]		[illegible]	[illegible]
3	4 2/3	Down						
5	4 2/3	Holiday						
6	5 2/3		36140	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	6 2/3		42410	[illegible]	170530	78550	[illegible]	[illegible]
8	7 2/3		36250	36250	170530	114800	285330	37215
9	8 2/3	27780	7100	34880	198310	121900	320210	[illegible]
10	9 2/3	38440		38440	236750	121900	358650	37100
11	10 2/3	38650		38650	275400	121900	397300	37245
12	11 2/3	40290		40290	315690	121900	437590	37506
13	12 2/3	2860	5340	8200	318550	127240	445790	35193
14	13 2/3		31270	31270	318550	158510	477060	34905
15	14 2/3		42430	42430	318550	200940	519490	35418
16	15 2/3		43250	43250	318550	244190	562740	35918
17	15 2/3	Down						
19	16 2/3		32790	32790	318550	276980	595530	35731
20	17 2/3		41910	41910	318550	318890	637440	36080
21	18 2/3		36920	36920	318550	355810	674360	36125
22	19 2/3		36080	36080	318550	391890	710440	36123
23	20 2/3		35320	35320	318550	427210	745760	36084
24	20 2/3	Down						
26	21 2/3	28700		28700	[illegible]	427210	774460	35743
27	22 2/3	40320		40320	387570	427210	814780	35945
28	23 2/3	36480		36480	424050	427210	851260	[illegible]
29	24 2/3	900	28830	29730	424950	456040	880990	35715
30	25 2/3		36830	36830	424950	492870	917820	35758
10 1	26 2/3		35320	35320	424950	528190	953140	[illegible]

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Totals #10 - #11 Machines - September 1977

Date	Days Worked	Today: Mf	Today: Carbon Tissue	Today: Total	To Date: Mf	To Date: Carbon Tissue	To Date: Total	Daily Average
8 29	1	62710		62710	62710		62710	62710
30	2	86590		86590	149300		149300	74650
31	3	79620		79620	228920		228920	76306
9 1	3 2/3	55200		55200	284120		284120	77480
2	4 2/3	75040		75040	359160		359160	76957
3	4 2/3	Down						
5	4 2/3	Holiday						
6	5 2/3	45580	36140	81720	404740	36140	440880	77797
7	6 2/3	47330	42410	89740	452070	78550	530620	79589
8	7 2/3	45210	36250	81460	497280	114800	612080	79833
9	8 2/3	78820	7100	85920	576100	121900	698000	80535
10	9 2/3	88600		88600	664700	121900	786600	81369
11	10 2/3	81460		81460	746160	121900	868060	81378
12	11 2/3	83790		83790	829950	121900	951850	81584
13	12 2/3	48020	5340	53360	877970	127240	1005210	79356
14	13 2/3	45490	31270	76760	923460	158510	1081970	79166
15	14 2/3	31600	42430	74030	955060	200940	1156000	78816
16	15 2/3	20140	43250	63390	975200	244190	1219390	77831
17	15 2/3	Down						
19	16 2/3	35980	32790	68770	1011180	276980	1288160	77288
20	17 2/3	32520	41910	74430	1043700	318890	1362590	77126
21	18 2/3	35460	36920	72380	1079160	355810	1434970	76872
22	19 2/3	45960	36080	82040	1125120	391890	1517010	77134
23	20 2/3	41070	35320	76390	1166190	427210	1593400	77098
24	20 2/3	Down						
26	21 2/3	[illegible]		69300	1235490	427210	1662700	76738
27	22 2/3	63660		63660	1299150	427210	1726360	76161
28	23 2/3	64670		64670	1363820	427210	1791030	75676
29	24 2/3	41350	28830	70180	1405170	456040	1861210	75453
30	25 2/3	44380	36830	81210	1449550	492870	1942420	75677
10 1	26 2/3	42680	35320	78000	1492230	528190	2020420	75764

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SA 067597

#10 October 1977

	Today					To Date			
Date	Days Worked	mf	Carbon Issue	Total		mf	Carbon Issue	Total	Daily Average
10 3	1	23660		23660		23660		23660	23660
4	2	48450		48450		72110		72110	36055
5	3	49810		49810		121920		121920	40640
6	4	41260		41260		163180		163180	40795
7	5	46620		46620		209800		209800	41960
8	5	Down							
10	6	45140		45140		254940		254940	42490
11	7	50160		50160		305100		305100	43585
12	8	46220		46220		351320		351320	43915
13	9	44930		44930		396250		396250	44027
14	10	37970		37970		434220		434220	43422
15	10	Down							
17	11	42700		42700		476920		476920	43356
18	12	43980		43980		520900		520900	43408
19	13	34440		34440		555340		555340	42718
20	14	40660		40660		596000		596000	42571
21	15	40520		40520		636520		636520	42434
22	15	Down							
24	16	18440		18440		654960		654960	40935
25	17	30920		30920		685880		685880	40345
26	18	47880		47880		733760		733760	40764
27	19	44310		44310		778070		778070	40951
28	20	46360		46360		824430		824430	41221

SA 867598

#11 October 1977

Date	Days worked	Today				To Date			
		My	Carbon Frame	Total		My	Carbon Frame	Total	Daily Average
10 3	1		30330	30330			30330	30330	30330
4	2		29750	29750			60080	60080	30040
5	3		37000	37000			97080	97080	32360
6	4	26720	4000	30720		26720	101080	127800	31950
7	5	51070		51070		77790	101080	178870	[illegible]
[illegible]	5	[illegible]							
10	6	38833		38833		116610	101080	217690	36282
11	7	3980	31260	35240		120590	132340	252930	36132
12	8		35720	35720		120590	168060	288650	36081
13	9		35900	35900		120590	203960	324550	36061
14	10		33460	33460		120590	237420	358010	35801
15	10	Down							
17	11	21110		21110		141700	237420	379120	34465
18	12	33540		33540		175240	237420	412660	34388
19	13	2420	31340	33760		177660	268760	446420	34340
20	14		35500	35500		177660	304260	481920	34422
21	15		37490	37490		177660	341750	519410	34627
22	15	Down							
24	16		34520	34520		177660	376270	553930	34620
25	17		32560	32560		177660	408830	586490	34499
26	18		23670	23670		177660	432500	610160	33897
27	19	36480		36480		214140	432500	646640	34035
28	20	42180		42180		256320	432500	688820	34441

5A 067599

Totals #10-#11 Machines October 1977

		Days Worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
10	3	1	23660	30330	53990	23660	30330	53990	53990
	4	2	48450	29750	78200	72110	60080	132190	66095
	5	3	49810	37000	86810	121920	97080	219000	73000
	6	4	67980	4000	71980	189900	101080	290980	72745
	7	5	97690		97690	287590	101080	388670	77734
	8	5	Sunday						
	10	6	83960		83960	371550	101080	472630	78771
	11	7	54400	31260	85400	425690	132340	558030	79718
	12	8	46620	35320	81940	471910	168060	639970	79996
	13	9	44930	35900	80830	516840	203960	720800	80088
	14	10	37970	33460	71430	554810	237420	792230	79223
	15	10	Sunday						
	17	11	63810		63810	618620	237420	856040	77821
	18	12	77520		77520	696140	237420	933560	77796
	19	13	36860	31340	68200	733000	268760	1001760	77058
	20	14	40660	35500	76160	773660	304260	1077920	76994
	21	15	40520	37490	78010	814180	341750	1155930	77062
	22	15	Sunday						
	24	16	18440	34520	52960	832620	376270	1208890	75555
	25	17	30760	33420	64180	863540	408830	1272370	74845
	26	18	47550	23670	71550	911420	432500	1343920	74662
	27	19	80790		80790	992210	432500	1424710	74984
	28	20	88540		88540	1080750	432500	1513250	75662

14 20

SA 067600

#10 November 1977

Date	Days Worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
10 31	1	24270		24270	24270		24270	24270
11 1	2	37800		37800	62070		62070	31035
2	3	44070		44070	106140		106140	35380
3	4	35990		35990	142130		142130	35532
4	5	44540		44540	186670		186670	37334
5	5	Sunday						
7	6	29210		29210	215880		215880	35980
8	7	13310		13310	229190		229190	32741
9	8	36920		36920	266110		266110	33263
10	9	39080		39080	305190		305190	33910
11	10	46760		46760	351950		351950	35195
12	10	Down						
14	11	19200		19200	371150		371150	33740
15	12	42520		42520	413670		413670	34472
16	13	31680		31680	445350		445350	34257
17	13	41580		41580	486930		486930	35628
18	14	39610		39610	526540		526540	35899
19	14	Down						
21	15	28930		28930	555470		555470	35454
22	16	42310		42310	597780		597780	35866
23	17	35200		35200	632980		632980	35838

SA 067601

#11 November 1977

Date		Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
10	31	1	31210		31210	31210		31210	31210
11	1	2	39300		39300	70510		70510	35255
	2	3	15520		15520	86030		86030	28676
	3	4	36700		36700	[illegible]		[illegible]	[illegible]
	4	5	36540		36540	159270		159270	31854
	5	5	Down						
	7	6	26100		26100	185370		185370	[illegible]
	8	7	32550		32550	217920		217920	31131
	9	8	35760		35760	253680		253680	31710
	10	9	25140	4810	29950	278820	4810	283630	31514
	11	10		35040	35040	278820	39850	318670	31867
	12	10	Down						
	14	11		26880	26880	278820	66730	345550	31413
	15	12		39530	39530	278820	106260	385080	32090
	16	13		34590	34590	278820	140850	419670	32282
	17	14		33760	33760	278820	174610	453430	32387
	18	15		34320	34320	278820	208930	487750	32516
	19	15	Down						
	21	16	25620		25620	304440	208930	513370	32085
	22	17	36640		36640	341080	208930	550010	32353
	23	18	36400		36400	377480	208930	586410	32578

SA 067602

Totals #10 - #11 Machines November 1977

Date	Days Worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
10 31	1	55480		55480	55480		55480	55480
11 1	2	77100		77100	132580		132580	66290
2	3	59590		59590	192170		192170	64056
3	4	72690		72690	264860		264860	66215
4	5	81080		81080	345940		345940	69188
5	5	Down						
7	6	55310		55310	401250		401250	66875
8	7	45860		45860	447110		447110	63872
9	8	72680		72680	519790		519790	64973
10	9	64220	4810	69030	584010	4810	588820	65424
11	10	46760	35040	81800	630770	39850	670620	67062
12	10	Down						
14	11	19200	26880	46080	649970	66730	716700	65154
15	12	42520	39530	82050	692490	106260	798750	66562
16	13	31680	34590	66270	724170	140850	865020	66540
17	#10 13 2/3 #11 14	41580	33760	75340	765750	174610	940360	68015
18	#10 14 2/3 #11 15	39610	34320	73930	805360	208930	1014290	68415
19	#10 14 2/3 #11 15	Down						
21	#10 15 2/3 #11 16	54550		54550	859910	208930	1068840	67539
22	#10 16 2/3 #11 17	78950		78950	938860	208930	1147790	68219
23	#10 17 2/3 #11 18	71600		71600	1010460	208930	1219390	68406

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SA 067603

#10 December 1977

Date	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
11 28	1	40160		40160	40160		40160	40160
29	2	47760		47760	87920		87920	43960
30	3	39570		39570	127490		127490	42496
12 1	4	21930		21930	149420		149420	37355
2	5	31320		31320	180740		180740	36148
3	5	Sown						
5	6	38650		38650	219390		219390	36565
6	7	44360		44360	263750		263750	37678
7	8	41490		41490	305240		305240	38155
8	9	45100		45100	350340		350340	38926
9	10	46740		46740	397080		397080	39708
10	10	Sown						
12	11	38320		38320	435400		435400	39581
13	12	44120		44120	479520		479520	39960
14	13	37360		37360	516880		516880	39760
15	14	36250		36250	553130		553130	39509
16	15	29460		29460	582590		582590	38839
17	16	Sown						
19	16	27300		27300	609890		609890	38118
20	17	25150		25150	635040		635040	37355
21	18	34210		34210	669250		669250	37180
22	19	41960		41960	711210		711210	37432
23	20	25900		25900	737110		737110	36855
24	20	No Work						
26	20	"						
27	21	14170		14170	751280		751280	35775
28	22	46190		46190	797470		797470	36248
29	23	39870		39870	837340		837340	36406
30	24	42970		42970	880310		880310	36679

SA 067604

#11 December 1977

Date	Days worked	Today: Mf	Today: Carbon Tissue	Today: Total	To Date: Mf	To Date: Carbon Tissue	To Date: Total	Daily Average
11 28	1		28410	28410		28410	28410	28410
29	2		37920	37920		66330	66330	33165
30	3		38940	38940		105270	105270	35090
12 1	4		40710	40710		145980	145980	36495
2	4 2/3		36040	36040		182020	182020	39001
3	4 2/3		Down					
5	5 2/3	21100		21100	21100	182020	203120	35842
6	6 2/3	25740		25740	46840	182020	228860	34327
7	7 2/3	40100		40100	86940	182020	268960	35080
8	7 2/3	Down			Down	182020	268960	35080
9	8 2/3		17030	17030	86940	199050	285990	32997
10	8 2/3	Down						
12	9 2/3		28540	28540	86940	227590	314530	32536
13	10 2/3		34960	34960	86940	262550	349490	32763
14	11 2/3		34810	34810	86940	297360	384300	32939
15	12 2/3		34500	34500	86940	331860	418800	33062
16	13 2/3		31000	31000	86940	362860	449800	32977
17	13 2/3	Down						
19	14 2/3	30440		30440	117380	362860	480240	32742
20	15 2/3	34080		34080	151460	362860	514320	30858
21	16 2/3	28160		28160	179620	362860	542480	32548
22	17 2/3	33940		33940	213560	362860	576420	32626
23	18 2/3	17960		17960	231520	362860	594380	31841
24	18 2/3	Holiday						
26	18 2/3	"						
27	19 2/3		30080	30080	231520	392940	624460	31751
28	20 2/3		41030	41030	231520	433970	665490	32200
29	21 2/3	35460		35460	266980	433970	700950	32351
30	22 2/3	8500	14330	22830	275480	448300	723780	31931

SA 067605

Totals #10-#11 Machines December 1977

Date	Days Worked	Today My	Today Carbon Trans	Today Total	To Date My	To Date Carbon Trans	To Date Total	Daily Average
11/28	1	40160	28410	68570	40160	28410	68570	68570
29	2	47760	37920	85680	87920	66330	154250	77125
30	3	39570	38940	78510	127490	105270	232760	77586
12/1	4	21930	40710	62640	149420	145980	295400	73850
2	#10 5 #11 4	31320	36040	67360	180740	182020	362760	75149
3	#10 5 #11 4	Sunday						
5	#10 6 #11 5	59750		59750	240490	182020	422510	72407
6	#10 7 #11 6	70100		70100	310590	182020	492610	72005
7	#10 8 #11 7	81590		81590	392180	182020	574200	73235
8	#10 9 #11 7	45100		45100	437280	182020	619300	74606
9	#10 10 #11 8	46740	17030	63770	484020	199050	683070	72705
10	#10 10 #11 8	Sunday						
12	#10 11 #11 9	38320	28540	66860	522340	227590	749930	72117
13	#10 12 #11 10	44100	34980	79080	566440	262550	829010	72723
14	#10 13 #11 11	37360	34810	72170	603820	297360	901180	72699
15	#10 14 #11 10	36250	34500	70750	640070	331860	971930	72571
16	#10 15 #11 9	29460	31000	60460	669530	362860	1032390	71750
17		Sunday						
19	#10 16 #11 14	57740		57740	727270	362860	1090130	70860
20	#10 17 #11 15	59230		59230	786500	362860	1149360	68213
21	#10 18 #11 16	62370		62370	848870	362860	1211730	69728
22	#10 19 #11 17	75900		75900	924770	362860	1287630	70058
23	#10 20 #11 18	43860		43860	968630	362860	1331490	68496
24	#10 20 #11 18	Holiday						
26	#10 20 #11 18	"						
27	#10 21 #11 19	14470	30080	44550	982800	392940	1375740	67526
28	#10 22 #11 20	46870	41030	87900	1028970	433970	1462940	68448
29	#10 23 #11 21	75330		75330	1104300	433970	1538270	68757
30	#10 23 #11 22	51470	14330	65800	1155770	448300	1604070	68610

14 24

SA 867686

#10 January 1978

Date	Days worked	Today: Mf	Today: Carbon Tissue	Today: Total	To Date: Mf	To Date: Carbon Tissue	To Date: Total	Daily Average
12	Holiday							
3	1	30020		30020	30020		30020	30020
4	2	45280		45280	75300		75300	37650
5	3	48370		48370	123670		123670	41223
6	4	37910		37910	161580		161580	40395
7	5	43900		43900	205480		205480	41096
8	6	40990		40990	246470		246470	41078
9	7	8980		8980	255450		255450	36492
10	8	26460		26460	281910		281910	35238
11	9	28540		28540	310450		310450	34494
12	10	25810		25810	336260		336260	33626
13	11	33470		33470	369730		369730	33611
14	11	Down						
16	12	23650		23650	393380		393380	32781
17	13	34580		34580	427960		427960	32920
18	14	37940		37940	465900		465900	33278
19	15	48480		48480	514380		514380	34292
20	16	46860		46860	561240		561240	35077
21	17	51490		51490	612730		612730	36042
22	18	52200		52200	664930		664930	36940
23	19	35150		35150	700080		700080	36846
24	20	20820		20820	720900		720900	36045
25	21	41450		41450	762350		762350	36302
26	22	48080		48080	810430		810430	36837
27	23	42310		42310	852740		852740	37075

SA 067607

#11 January 1978

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
1 2	Holiday							
3	1	15370		15370	15370		15370	15370
4	2	37480		37480	52850		52850	26425
5	3	6740	16100	22840	59590	16100	75690	25230
6	4		25390	25390	59590	[illegible]	101080	25270
7	5		37170	37170	59590	78660	138250	27650
8	6		36930	36930	59590	115590	175180	[illegible]
9	7		34020	34020	59590	149610	209200	29885
10	8		32090	32090	59590	181700	241290	30161
11	9	32160	600	32760	91750	182300	274050	30450
12	10	36990		36990	128740	182300	311040	31104
13	11	33760		33760	162500	182300	344800	31345
14	11	Down						
16	12		27610	27610	162500	209910	372410	31034
17	13		31780	31780	162500	241690	404190	31091
18	14		34880	34880	162500	276570	439070	31362
19	15		41500	41500	162500	318070	480570	32038
20	16	12120		12120	174620	318070	492690	30793
21	17	16820		16820	191440	318070	509510	29971
22	18	17380		17380	208820	318070	526890	29271
23	19	37630		37630	246450	318070	564520	29711
24	20	22790		22790	269240	318070	587310	29365
25	21	37590		37590	306830	318070	624900	29757
26	22	39280		39280	346110	318070	664180	30190
27	23	32580		32580	378690	318070	696760	30293

SA 067608

Totals #10-#11 Machines - January 1978

Date	Days Worked	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total	Daily Average
12	Holiday							
3	1	45390		45390	45390		45390	45390
4	2	82760		82760	128150		128150	64075
5	3	55110	16100	71210	183260	16100	199360	66453
6	4	37910	25390	63300	221170	41490	262660	65665
7	5	43900	37170	81070	265070	78660	343730	68746
8	6	40990	36930	77920	306060	115590	421650	70275
9	7	8980	34020	43000	315040	149610	464650	66378
10	8	26460	32090	58550	341500	181700	523200	65400
11	9	60700	600	61300	402200	182300	584500	64944
12	10	62800		62800	465000	182300	647300	64730
13	11	67230		67230	532230	182300	714530	64957
14	11	Down						
16	12	23650	27610	51260	555880	209910	765790	63815
17	13	34580	31780	66360	590460	241690	832150	64011
18	14	37940	34880	72820	628400	276570	904970	64640
19	15	48480	41500	89980	676880	318070	994950	66330
20	16	58980		58980	735860	318070	1053930	65870
21	17	68310		68310	804170	318070	1122240	66014
22	18	69580		69580	873750	318070	1191820	66212
23	19	72780		72780	946530	318070	1264600	66557
24	20	43610		43610	990140	318070	1308210	65410
25	21	79040		79040	1069180	318070	1387250	66059
26	22	87360		87360	1156540	318070	1474610	67027
27	23	74890		74890	1231430	318070	1549500	67369
			11	23				

SA 867609

#10 February 1978

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
1 30	1	35610		35610	35610		35610	35610
31	2	25820		25820	61430		61430	30715
2 1	3	19010		19010	80440		80440	26813
2	4	37950		37950	118390		118390	29598
3	5	50060		50060	168450		168450	33690
4	5	Down			168450		168450	33690
6	6	39010		39010	207460		207460	34576
7	7	46910		46910	254370		254370	36338
8	8	49770		49770	304140		304140	38017
9	9	27970		27970	332110		332110	36901
10	10	33120		33120	365230		365230	36523
11	11	29990		29990	395220		395220	35929
12	12	15870		15870	411090		411090	34257
13	13	36260		36260	447350		447350	34411
14	14	32990		32990	480340		480340	34310
15	15	52700		52700	533040		533040	35536
16	16	33270		33270	566310		566310	35394
17	17	34830		34830	601140		601140	35361
18	17	Down			601140		601140	35361
20	18	35280		35280	636420		636420	35356
21	19	36680		36680	673100		673100	35426
22	20	34840		34840	707940		707940	35397
23	21	33060		33060	741000		741000	35285
24	22	15320		15320	756320		756320	34378
25	23	32800		32800	789120		789120	34309
26	24	33630		33630	822750		822750	34281

SA 067610

#11 February 1978

		Today			To Date			
Date	Days worked	mf	Carbon Issue	Total	mf	Carbon Issue	Total	Daily Average
30	1		30040	30040		30040	30040	30040
31	2		39900	39900		69940	69940	34970
21	3		30630	30630		100570	100570	33523
2	4	36060		36060	36060	100570	136630	34157
3	5	32840		32840	68900	100570	169470	33894
4	5	[illegible]			68900	100570	169470	33894
6	6	33980		33980	102880	100570	203450	33908
7	7	36710		36710	139590	100570	240160	34308
8	8	6200	13550	19750	145790	114120	259910	32488
9	9		31470	31470	145790	145590	291380	32375
10	10		36020	36020	145790	181610	327400	32740
11	11		39810	39810	145790	221420	367210	33382
12	12		38000	38000	145790	259420	405210	33767
13	13		29050	29050	145790	288470	434260	33404
14	14		39710	39710	145790	328180	473970	33855
15	15	12180	15790	27970	157970	343970	501940	33463
16	16	31150		31150	189120	343970	533090	33318
17	17	27080		27080	216200	343970	560170	32951
18	17	Down			216200	343970	560170	32951
20	18	10510		10510	226710	343970	570680	31704
21	19	31000		31000	257710	343970	601680	31667
22	20	42280		42280	299990	343970	643960	32198
23	21	37060		37060	337050	343970	681020	32429
24	22	36440		36440	373490	343970	717460	32611
25	23	36040		36040	409530	343970	753500	32760
26	24	39720		39720	449250	343970	793220	33051

SH 067611

Totals #10-#11 Machines

February 1978

Date	Days worked	Today my	Today Carton Issue	Today Total	To Date my	To Date Carton Issue	To Date Total	To Date Daily Average
1 30	1	35610	30040	65650	35610	30040	65650	65650
31	2	25820	39900	65720	61430	69940	131370	65685
2 1	3	19010	30630	49640	80440	100570	181010	60336
2	4	74010		74010	154450	100570	255020	63755
3	5	82900		82900	237350	100570	337920	67584
4	5	Down			237350	100570	337920	67584
6	6	72990		72990	310340	100570	410910	68485
7	7	83620		83620	393960	100570	494530	70647
8	8	55970	13550	69520	449930	114120	564050	70506
9	9	27970	31470	59440	477900	145590	623490	69276
10	10	33120	36020	69140	511020	181610	692630	69263
11	11	29990	39810	69800	541010	221420	762430	69311
12	12	15870	38000	53870	556880	259420	816300	68025
13	13	36260	29050	65310	593140	288470	881610	67816
14	14	32990	39710	72700	626130	328180	954310	68165
15	15	64880	15790	80670	691010	343970	1034980	68998
16	16	64420		64420	755430	343970	1099400	68712
17	17	61910		61910	817340	343970	1161310	68312
18	17	Down			817340	343970	1161310	68312
20	18	45790		45790	863130	343970	1207100	67061
21	19	67680		67680	930810	343970	1274780	67093
22	20	77120		77120	1007930	343970	1351900	67595
23	21	70120		70120	1078050	343970	1422020	67715
24	22	51760		51760	1129810	343970	1473780	66990
25	23	68840		68840	1198650	343970	1542620	67070
26	24	73350		73350	1272000	343970	1615970	67332

11 24

SA 067612

#10 March 1978

Date	Days Worked	Today Mf	Today Carbon Issue	Today Total	To Date Mf	To Date Carbon Issue	To Date Total	Daily Average
2 27	1	26920		26920	26920		26920	26920
28	2	16230		16230	43150		43150	21575
3 1	3	11360		11360	54510		54510	18170
2	4	34760		34760	89270		89270	22317
3	5	35580		35580	124850		124850	24970
4	5	Holiday						
6	6	36030		36030	160880		160880	26813
7	7	20590		20590	181470		181470	25924
8	8	26490		26490	207960		207960	25995
9	9	34630		34630	242590		242590	26954
10	10	15740		15740	258330		258330	25833
11	11	21730		21730	280060		280060	25460
12	12	25470		25470	305530		305530	25460
13	13	29890		29890	335420		335420	25801
14	14	10360		10360	345780		345780	24698
15	15	30740		30740	376520		376520	25101
16	16	27550		27550	404070		404070	25254
17	17	42560		42560	446630		446630	26272
18	18	40020		40020	486650		486650	27036
19	19	37270		37270	523920		523920	27574
20	20	23220		23220	547140		547140	27357
21	21	33060		33060	580200		580200	27628
22	22	48030		48030	628230		628230	28555
23	23	46300		46300	674530		674530	29327
24	24	42020		42020	716550		716550	29856
25	24	Holiday						
27	25	34550		34550	751100		751100	30044
28	26	48120		48120	799220		799220	30739
29	27	46320		46320	845540		845540	31316
30	28	42660		42660	888200		888200	31721
31	29	31920		31920	920120		920120	31728
4 1	30	48250		48250	968370		968370	32279
2	31	47720		47720	1016090		1016090	32777

SA 067613

#11 March 1978

	Today					To Date			
Date	Days Worked	Tons	Carbon Tissue	Total		Tons	Carbon Tissue	Total	Daily Average
27	1	4440	29580	29820		4440	29380	29820	29820
28	2		40360	40360		4440	69740	70180	35090
31	3		33650	33650		4440	103390	103830	34610
2	4		16839	16839		4440	120229	120669	30165
3	5		34190	34190		4440	154419	154859	30971
4	5	Down							
6	6	34120	2730	36850		34560	157149	191700	31950
7	7	41760		41760		76320	157149	233460	33351
8	8	38900		38900		115220	157149	272360	34045
9	9	44640		44640		159860	157149	317000	35222
10	10	42160		42160		202020	157149	359160	35916
11	11	44370		44370		246390	157149	403530	36684
12	12	38810		38810		285200	157149	442340	36861
13	13		18740	18740		285200	175889	461089	35467
14	14		43760	43760		285200	219149	504349	36025
15	15		42110	42110		285200	261259	546459	36430
16	16		40330	40330		285200	301589	586789	36673
17	17		38690	38690		285200	340279	625479	36793
18	18		39050	39050		285200	379329	664529	36917
19	19		36710	36710		285200	416039	701239	36906
20	20	29720	1820	31540		314920	417859	732779	36638
21	21	18580	14410	32990		333500	432269	765769	36464
22	22		36480	36480		333500	468749	802249	36465
23	23		40510	40510		333500	509259	842759	36644
24	24		38820	38820		333500	548079	881579	36732
25	24	Down							
27	25	21970		21970		355470	548079	903549	36141
28	26	39710		39710		395180	548079	943259	36278
29	27	33780		33780		428960	548079	977039	36186
30	28	28390		28390		457350	548079	1005429	35707
31	29	37910		37910		495260	548079	1043339	35976
41	30	37630		37630		532880	548079	1080959	36031
2	31	36180		36180		569060	548079	1117139	36036

SA 067614

Totals #10-#11 Machines March 1978

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
2 27	1	27360	29380	56740	27360	29380	56740	56740
28	2	16230	40360	56590	43590	69740	113330	56665
3 1	3	11360	33650	45010	54950	103390	158340	52780
2	4	34760	16830	51590	89710	120220	209930	52482
3	5	35580	34190	69770	125290	154410	279700	55940
4	5	Down						
6	6	70150	2730	72880	195440	157140	352580	58763
7	7	62350		62350	257790	157140	414930	59275
8	8	65390		65390	323180	157140	480320	60046
9	9	79270		79270	402450	157140	559590	62176
10	10	57900		57900	460350	157140	617490	61749
11	11	66100		66100	526450	157140	683590	62144
12	12	64280		64280	590730	157140	747870	62322
13	13	29890	18740	48630	620620	175880	796500	61269
14	14	10360	43260	53620	630980	219140	850120	60722
15	15	30740	42110	72850	661720	261250	922970	61531
16	16	27550	40330	67880	689270	301580	990850	61928
17	17	42560	38690	81250	731830	340270	1072100	63064
18	18	40020	39050	79070	771850	379320	1151170	63953
19	19	37270	36710	73980	809120	416030	1225150	64181
20	20	52940	1820	54760	862060	417850	1279910	63995
21	21	51640	14410	66050	913700	432260	1345960	64093
22	22	48030	36480	84510	961730	468740	1430470	65021
23	23	46300	40510	86810	1008030	509250	1517280	65968
24	24	42020	38820	80840	1050050	548070	1598120	66588
25	24	[illegible]						
27	25	56520		56520	1106570	548070	1654640	66185
28	26	87830		87830	1194400	548070	1742470	67018
29	27	80100		80100	1274500	548070	1822570	67502
30	28	71050		71050	1345550	548070	1893620	67629
31	29	69830		69830	1415380	548070	1963450	67705
4 1	30	85870		85870	1501250	548070	2049320	68310
2	31	83900		83900	1585150	548070	2133220	68813
			18	31				

SA 067615

#10 April 1978

Date	Days Worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
43	1	42580		42580	42580		42580	42580
4	2	38920		38920	81500		81500	40750
5	3	46130		46130	127630		127630	42543
6	4	39760		39760	167390		167390	41847
7	5	52330		52330	219720		219720	43944
8	5	Sun						
10	6	37690		37690	257410		257410	42901
11	7	42090		42090	299500		299500	42785
12	8	37860		37860	337360		337360	42170
13	9	22980		22980	360340		360340	40037
14	10	45870		45870	406210		406210	40621
15	11	42360		42360	448570		448570	40779
16	12	47020		47020	495590		495590	41299
17	13	42960		42960	538550		538550	41426
18	14	44630		44630	583180		583180	41655
19	15	37810		37810	620990		620990	41399
20	16	30240		30240	651230		651230	40701
21	17	40440		40440	691670		691670	40686
22	18	46230		46230	737900		737900	40994
24	19	37840		37840	775740		775740	40828
25	20	34010		34010	809750		809750	40487
26	21	43500		43500	853250		853250	40630
27	22	48900		48900	902150		902150	41006
28	23	33440		33440	935590		935590	40677
29	24	42420		42420	978010		978010	40750

SA 067616

#11 April 1978

Date	Days Worked	Today My	Today Carbon Trans	Today Total	To Date My	To Date Carbon Trans	To Date Total	Daily Average
4/3	1	43100		43100	43100		43100	43100
4	2	39540		39540	82640		82640	41320
5	3	34080		34080	116720		116720	38906
6	4	41040		41040	157760		157760	39440
7	5	42420		42420	200180		200180	40036
	5	[illegible]						
10	6		23190	23190	200180	23190	223370	37223
11	7		33840	33840	200180	57030	257210	36744
12	8	30500		30500	230680	57030	287710	35963
13	9	30800		30800	261480	57030	318510	35390
14	10	39620		39620	301100	57030	358130	35813
15	11	31040		31040	332140	57030	389170	35379
16	12	17310		17310	349450	57030	406480	33873
17	13	43740		43740	393190	57030	450220	34632
18	14	35890		35890	429080	57030	486110	34722
19	15	28140		28140	457220	57030	514250	34283
20	16	41390		41390	498610	57030	555640	34727
21	17	16400	16120	32520	515010	73150	588160	34597
22	18		37600	37600	515010	110750	625760	34764
24	19		34280	34280	515010	145030	660040	34738
25	20		31870	31870	515010	176900	691910	34595
26	21	25120		25120	540130	176900	717030	34144
27	22	33840		33840	573970	176900	750870	34130
28	23	37020		37020	610990	176900	787890	34256
29	24	27890		27890	638880	176900	815780	33990

SA 867617

Totals #10 - #11 Machines April 1978

Date	Days worked	Today my	Today Carton Issue	Today Total	To Date my	To Date Carton Issue	To Date Total	Daily Average
43	1	85680		85680	85680		85680	85680
4	2	78460		78460	164140		164140	82070
5	3	80210		80210	244350		244350	81450
6	4	80800		80800	325150		325150	81288
7	5	94750		94750	419900		419900	83980
8	5	[illegible]						
10	6	37690	23190	60880	457590	23190	480780	80130
11	7	42090	33840	75930	499680	57030	556710	79530
12	8	68360		68360	568040	57030	625070	78133
13	9	53780		53780	621820	57030	678850	75427
14	10	85490		85490	707310	57030	764340	76434
15	11	73400		73400	780710	57030	837740	76158
16	12	64330		64330	845040	57030	902070	75172
17	13	86700		86700	931740	57030	988770	76059
18	14	80520		80520	1012260	57030	1069290	76377
19	15	65950		65950	1078210	57030	1135240	75682
20	16	71630		71630	1149840	57030	1206870	75429
21	17	56840	16120	72960	1206680	73150	1279830	75284
22	18	46230	37600	83830	1252910	110750	1363660	75758
24	19	37840	34280	72120	1290750	145030	1435780	75567
25	20	34010	31870	65880	1324760	176900	1501660	75083
26	21	68620		68620	1393380	176900	1570280	74775
27	22	82740		82740	1476120	176900	1653020	75137
28	23	70460		70460	1546580	176900	1723480	74933
29	24	70310		70310	1616890	176900	1793790	74741

6 24

SA 067618

#10 May 1978

Date	Days Worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
4 1		Strike						
2		"						
3		"						
4		"						
5	1/2	24360		24350	24350		24350	24350
6	1 1/2	40590		40590	64940		64940	43293
7	2 1/2	51440		51440	116380		116380	46552
8	3 1/2	50400		50400	166780		166780	47651
9	4 1/2	52500		52500	219280		219280	48728
10	5 1/2	39320		39320	258600		258600	47018
11	6 1/2	39980		39980	298580		298580	45935
12	7 1/2	38820		38820	337400		337400	44986
13	8 1/2	44330		44330	381730		381730	44909
14	9 1/2	37940		37940	419670		419670	44175
15	10 1/2	52000		52000	471670		471670	44920
16	11 1/2	46010		46010	517680		517680	45015
17	12 1/2	27180		27180	544860		544860	43588
18	13 1/2	35540		35540	580400		580400	42993
19	14 1/2	42990		42990	623390		623390	42992
20	15 1/2	50670		50670	674060		674060	43487
21	16 1/2	46110		46110	720170		720170	43646
22	17 1/2	37000		37000	757170		757170	43266
23	18 1/2	46860		46860	804030		804030	43461
24	19 1/2	23920		23920	827950		827950	42458
25	20 1/2	31300		31300	859250		859250	41914
26	21 1/2	34890		34890	894140		894140	41587

SA 067619

#11 May 1978

Date	Men Worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
4/1		Strike						
2		"						
3		"						
4		"						
5	5	11180		11180	11180		11180	11180
6	13	39580		39580	50760		50760	[illegible]
7	23	39820		39820	90580		90580	[illegible]
8	34	40500		40500	131080		131080	37445
9	43	41520		41520	172600		172600	38360
10	52	21020		21020	193620		193620	35201
11	64	38170		38170	231790		231790	35660
12	72	3600	20470	24070	235390	20470	255860	34114
13	84		21260	21260	235390	41730	277120	[illegible]
14	94		34420	34420	235390	76150	311540	[illegible]
15	105		30050	30050	235390	106200	341590	32532
16	115		35170	35170	235390	141370	376760	32761
17	125		27130	27130	235390	168500	403890	32311
18	135	20890	1600	22490	256280	170100	426380	31583
19	144	26390		26390	282670	170100	452770	31225
20	155	27690		27690	310360	170100	480460	30777
21	165	38140		38140	348500	170100	518600	31430
22	175	38540		38540	387040	170100	557140	31836
23	185	34600		34600	421640	170100	591740	31985
24	195	34960		34960	456600	170100	626700	[illegible]
25	205	15380	12650	28030	471980	182750	654730	[illegible]
26	215		32180	32180	471980	214930	686910	31947

SA 067620

Totals #10 - #11 Machines May 1978

Date	Change Counted	Today's Take		Carbon Issue	Total	To Date		Carbon Issue	Total	Daily Average
4/1		Strike								
2		"								
3		"								
4		"								
5		1/2	35530		35530	35530			35530	35530
6		1 1/2	80170		80170	115700			115700	77133
7		2 1/2	91260		91260	206960			206960	82784
8		3 1/2	90900		90900	297860			297860	85102
9		4 1/2	94020		94020	391880			391880	87084
10		5 1/2	60340		60340	452220			452220	82221
11		6 1/2	78150		78150	530370			530370	81595
12		7 1/2	42420	20470	62890	572790		20470	593260	79101
13		8 1/2	44330	21260	65590	617120		41730	658850	77511
14		9 1/2	37940	34420	72360	655060		76150	731210	76969
15		10 1/2	52000	30050	82050	707060		106200	813260	77453
16		11 1/2	46010	35170	81180	753070		141370	894440	77777
17		12 1/2	27180	27130	54310	780250		168500	948750	75900
18		13 1/2	56430	1600	58030	836680		170100	1006780	74576
19		14 1/2	69380		69380	906060		170100	1076160	74217
20		15 1/2	78360		78360	984420		170100	1154520	74485
21		16 1/2	84250		84250	1068670		170100	1238770	75076
22		17 1/2	75540		75540	1144210		170100	1314310	75103
23		18 1/2	81460		81460	1225670		170100	1395770	75447
24		19 1/2	58880		58880	1284550		170100	1454650	74997
25		20 1/2	46680	12650	59330	1331230		182750	1513980	73852
26		21 1/2	34890	32180	67070	1366120		214930	1581050	73537

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SA 067621

#10 June 1978

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
5 29	Holiday							
30	1	25650		25650	25650		25650	25650
31	2	35180		35180	60830		60830	30415
6 1	3	34480		34480	95310		95310	31770
2	4	40670		40670	135980		135980	33995
3	5	31280		31280	167260		167260	33452
4	6	47760		47760	215020		215020	35836
5	7	39000		39000	254020		254020	36288
6	8	41180		41180	295200		295200	36900
7	9	11440		11440	306640		306640	34071
8	10	49870		49870	356510		356510	35651
9	11	48750		48750	405260		405260	36842
10	11	Down						
12	12	39490		39490	444750		444750	37062
13	13	53030		53030	497780		497780	38290
14	14	47840		47840	545620		545620	38972
15	15	44730		44730	590350		590350	39356
16	16	34680		34680	625030		625030	39064
17	17	32970		32970	658000		658000	38705
18	18	47570		47570	705570		705570	39198
19	19	41340		41340	746910		746910	39311
20	20	42310		42310	789220		789220	39461
21	21	48590		48590	837810		837810	39895
22	22	38280		38280	876090		876090	39822
23	23	38830		38830	914920		914920	39779
24	24	31340		31340	946260		946260	39427
25	25	42940		42940	989200		989200	39568
26	26	37850		37850	1027050		1027050	39501
27	27	32660		32660	1059710		1059710	39248
28	28	42100		42100	1101810		1101810	39350
29	28½	14420		14420	1116230		1116230	39165
30	29½	20400		20400	1136630		1136630	38529

#11 June 1978

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
5 29	Holiday							
30	1		32370	32370		32370	32370	32370
31	2		36150	36150		68520	68520	34260
6 1	3		32400	32400		100920	1009[illegible]	33640
2	4		29490	29490		130410	130410	32600
3	5	35860		35860	35860	130410	166270	33[illegible]4
4	6	35470		35470	71330	130410	201740	33[illegible]
5	7	36220		36220	107550	130410	237960	33994
6	8	36840		36840	144390	130410	274800	34350
7	9	24530		24530	168920	130410	299330	33258
8	10	27070		27070	196010	130410	326420	32642
9	11	36760		36760	232770	130410	363180	33016
10	11	Down						
12	12	24820		24820	257590	130410	388000	32333
13	13	41390		41390	298980	130410	429390	33030
14	14	21440		21440	320420	130410	450830	32202
15	15	25300		25300	345720	130410	476130	31742
16	16	2600	17600	20200	348320	148010	496330	31020
17	17		29400	29400	348320	177410	525730	30925
18	18		34110	34110	348320	211520	559840	31102
19	19		30100	30100	348320	241620	589940	31049
20	20		27440	27440	348320	269060	617380	30869
21	21		32375	32375	348320	301435	649755	30940
22	22	29090		29090	377410	301435	678845	30856
23	23	39030		39030	416440	301435	717875	31211
24	24	34900		34900	451340	301435	752775	31365
25	25	21160		21160	472500	301435	773935	30957
26	26	37890		37890	510390	301435	8118[illegible]	31224
27	27	42260		42260	552650	301435	854085	31632
28	28	37850		37850	590500	301435	891935	31854
29	29	33220		33220	623720	301435	925155	31901
30	30	33330		33330	657050	301435	958485	31949

SA 067623

Totals #10 - #11 Machines June 1978

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
5 29	Holiday							
30	1	25650	32370	58020	25650	32370	58020	58020
31	2	35180	36150	71330	60830	68520	129350	64675
6 1	3	34480	32400	66880	95310	100920	196230	65410
2	4	40670	29490	70160	135980	130410	266390	66597
3	5	67140		67140	203120	130410	333530	66706
4	6	83230		83230	286350	130410	416760	69460
5	7	75220		75220	361570	130410	491980	70282
6	8	78020		78020	439590	130410	570000	71250
7	9	35970		35970	475560	130410	605970	67330
8	10	76960		76960	552520	130410	682930	68293
9	11	85510		85510	638030	130410	768440	69858
10	11	Down						
12	12	64310		64310	702340	130410	832750	69395
13	13	94420		94420	796760	130410	927170	71320
14	14	69280		69280	866040	130410	996450	71175
15	15	70030		70030	936070	130410	1066480	71098
16	16	37280	17600	54880	973350	148010	1121360	70085
17	17	32970	29400	62370	1006320	177410	1183730	69631
18	18	47570	34110	81680	1053890	211520	1265410	70300
19	19	41340	30100	71440	1095230	241620	1336850	70360
20	20	42310	27440	69750	1137540	269060	1406600	70330
21	21	48590	32375	80965	1186130	301435	1487565	70836
22	22	67370		67370	1253500	301435	1554935	70678
23	23	77860		77860	1331360	301435	1632795	70991
24	24	66240		66240	1397600	301435	1699035	70793
25	25	64100		64100	1461700	301435	1763135	70525
26	26	[illegible]		[illegible]	1537440	301435	1838875	70725
27	27	74920		74920	1612360	301435	1913795	70881
28	28	79950		79950	1692310	301435	1993745	71205
29	#10 28 #11 29	47640		47640	1739950	301435	2041385	71066
30	#10 29 #11 30	53730		53730	1793680	301435	2095115	70478
			10	30				

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#10 July 1978

Date	Days worked	Today mf	Carbon Issue	Total	To Date mf	Carbon Issue	Total	Daily Average
7 3/4	Holiday							
5	1	28410		28410	28410		28410	28410
6	2	40870		40870	69280		69280	34640
7	3	30620		30620	99900		99900	33300
8	4	39210		39210	139110		139110	34777
9	5	38500		38500	177610		177610	35522
10	6	44730		44730	222340		222340	37056
11	7	38440		38440	260780		260780	37254
12	8	36040		36040	296820		296820	37102
13	9	42960		42960	339780		339780	37753
14	9 1/3	4400		4400	344180		344180	36877
15	9 2/3	Drain						
17	10 1/3	39660		39660	383840		383840	37147
18	11 1/3	46070		46070	429910		429910	37934
19	12 1/3	36640		36640	466550		466550	37837
20	13 1/3	36360		36360	502910		502910	36800
21	14 1/3	21050		21050	523960		523960	36556
22	15 1/3	38580		38580	562540		562540	36858
23	16 1/3	49750		49750	612290		612290	37487
24	17 1/3	35280		35280	647570		647570	37360
25	18 1/3	43200		43200	690770		690770	37679
26	19 1/3	35260		35260	726030		726030	37553
27	20 1/3	44220		44220	770250		770250	37881
28	21 1/3	45130		45130	815380		815380	38187

SA 067625

#11 July 1978

Date	Days worked	Today mg	Today Carbon Issue	Today Total	To Date mg	To Date Carbon Issue	To Date Total	Daily Average
3/4	Holiday							
5	1	12970	9000	21970	12970	9000	21970	21970
6	2		34920	34920	12970	43920	56890	28445
7	3	25890		25890	38860	43920	82780	27592
8	4	40100		40100	78960	43920	122880	30720
9	5	37700		37700	116660	43920	160580	32116
10	6	32180		32180	148840	43920	192760	32126
11	7	35320		35320	184160	43920	228080	32583
12	8		19840	19840	184160	63760	247920	30990
13	9		31960	31960	184160	95720	279880	31097
14	10		25490	25490	184160	121210	305370	30537
15	10	Drum						
17	11		36410	36410	184160	157620	341780	31070
18	12		36210	36210	184160	193830	377990	31499
19	13		36780	36780	184160	230610	414770	31905
20	14		24560	24560	184160	255170	439330	31380
21	15		35690	35690	184160	290860	475020	31668
22	16		30200	30200	184160	321060	505220	31576
23	17		30400	30400	184160	351460	535620	31507
24	18	13670		13670	197830	351460	549290	30510
25	19	33250		33250	231080	351460	582540	30660
26	20	29910		29910	260990	351460	612450	30622
27	21	36650		36650	297640	351460	649100	30907
28	22		31980	31980	297640	383440	681080	30958

SA 067626

Tally Sheet #10 - #11 Machines

Date: July 1978

Daily Count	Total	Operator Number	Time	Total	Gordon Number	Time	Total	Operator Number	Time	Total	Daily Count
1	505080	900	1526	505080	900	1526	505080	900	1526	505080	1
2	1826480	4392	1826480	1321400	4392	1826480	1321400	4392	1826480	1321400	2
3	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	3
4	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	4
5	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	5
6	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	6
7	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	7
8	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	8
9	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	9
10	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	10
11	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	11
12	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	12
13	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	13
14	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	14
15	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	15
16	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	16
17	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	17
18	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	18
19	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	19
20	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	20
21	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	21
22	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	22
23	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	23
24	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	24
25	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	25
26	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	26
27	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	27
28	1321400	4392	1321400	1321400	4392	1321400	1321400	4392	1321400	1321400	28

#10 August 1978

Date	Days worked	Today: mf	Today: Carbon Tissue	Today: Total	To Date: mf	To Date: Carbon Tissue	To Date: Total	Daily Average
7 31	1	25820		25820	25820		25820	25820
8 1	2	23980		23980	49800		49800	24900
2	3	40530		40530	90330		90330	30110
3	4	37040		37040	127370		127370	31842
4	5	39900		39900	167270		167270	33454
5	6	32130		32130	199400		199400	33233
6	7	40620		40620	240020		240020	34288
7	8	40160		40160	280180		280180	35022
8	9	25260		25260	305440		305440	33937
9	10	43620		43620	349060		349060	34906
10	11	32820		32820	381880		381880	34716
11	12	25220		25220	407100		407100	33925
12	12	Down						
14	13	21300		21300	428400		428400	32953
15	14	27180		27180	455580		455580	32541
16	15	28710		28710	484290		484290	32286
17	16	38520		38520	522810		522810	32675
18	17	37610		37610	560420		560420	32965
19	18	46910		46910	607330		607330	33740
20	19	47410		47410	654740		654740	34460
21	20	46300		46300	701040		701040	35052
22	21	44260		44260	745300		745300	35490
23	22	41120		41120	786420		786420	35746
24	23	56520		56520	842940		842940	36649
25	24	43940		43940	886880		886880	36953
26	25	42150		42150	929030		929030	37161
27	[illegible]	26910		26910	955940		955940	36766

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#11 August 1978

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
7 31	1	6050		6050	6050		6050	6050
8 1	2	37310		37310	43360		43360	21680
2	3	36640		36640	80000		80000	26666
3	4	38680		38680	118680		118680	29670
4	5	37560		37560	156240		156240	31248
5	6	45[illegible]		45[illegible]	[illegible]		[illegible]	[illegible]
6	7	41920		41920	243420		243420	34[illegible]
7	8	33400		33400	276820		276820	34602
8	9	22120		22120	298940		298940	33215
9	10	3640	17460	21100	302580	17460	320040	32004
10	11		37470	37470	302580	54930	357510	32500
11	12		29400	29400	302580	84330	386910	32242
12	12	Down						
14	13	15080	14860	29940	317660	99190	416850	32065
15	14	31200	680	31880	348860	99870	448730	32052
16	15	40640		40640	389500	99870	489370	32624
17	16	19180		19180	408680	99870	508550	31784
18	17	40980		40980	449660	99870	549530	32325
19	18	42340		42340	492000	99870	591870	32881
20	19	36170		36170	528170	99870	628040	33054
21	20	40390		40390	568560	99870	668430	33421
22	21	37480		37480	606040	99870	705910	33614
23	22	33200		33200	639240	99870	739110	33595
24	23	7520	6150	13670	646760	106020	752780	32729
25	24	34820		34820	681580	106020	787600	32816
26	25	42880		42880	724460	106020	830480	33219
27	26	40690		40690	765150	106020	871170	33506

SA 067629

Totals #10 - #11 Machines August 1978

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
7 31	1	31870		31870	31870		31870	31870
8 1	2	61290		61290	93160		93160	46580
2	3	77170		77170	170330		170330	56776
3	4	75720		75720	246050		246050	61512
4	5	77460		77460	323510		323510	64702
5	6	77390		77390	400900		400900	66816
6	7	82540		82540	483440		483440	69062
7	8	73560		73560	557000		557000	69625
8	9	47380		47380	604380		604380	67153
9	10	47260	17460	64720	651640	17460	669100	66910
10	11	32820	37470	70290	684460	54930	739390	67217
11	12	25220	29400	54620	709680	84330	794010	66167
12	12	[illegible]						
14	13	36380	14860	51240	746060	99190	845250	65019
15	14	58380	680	59060	804440	99870	904310	64593
16	15	69350		69350	873790	99870	973660	64910
17	16	57700		57700	931490	99870	1031360	64460
18	17	78590		78590	1010080	99870	1109950	65291
19	18	89250		89250	1099330	99870	1199200	66622
20	19	83580		83580	1182910	99870	1282780	67514
21	20	86690		86690	1269600	99870	1369470	68473
22	21	81740		81740	1351340	99870	1451210	69105
23	22	74320		74320	1425660	99870	1525530	69342
24	23	64040	6150	70190	1489700	106020	1595720	69379
25	24	78760		78760	1568460	106020	1674480	69770
26	25	85030		85030	1653490	106020	1759510	70380
27	26	67600		67600	1721090	106020	1827110	70273

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SA 067630

#10 September 1978

Date	Days Worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
8 28	1	42680		42680	42680		42680	42680
29	2	47290		47290	89970		89970	44985
30	3	51030		51030	141000		141000	47000
31	4	45610		45610	186610		186610	46652
9 1	5	43070		43070	229680		229680	[illegible]
2	5	[illegible]						
4	5	[illegible]			[illegible]		[illegible]	[illegible]
5	6	42870		42870	[illegible]		[illegible]	[illegible]
6	7	43850		43850	316400		316400	45200
7	8	43650		43650	360050		360050	45006
8	9	37870		37870	397920		397920	44213
	10	48000		48000	445920		445920	44592
10	11	40790		40790	486710		486710	44246
11	12	49550		49550	536260		536260	44688
12	13	44680		44680	580940		580940	44687
13	14	45160		45160	626100		626100	44727
14	15	52150		52150	678250		678250	45216
15	16	43790		43790	722040		722040	45127
16	16	[illegible]						
18	17	47630		47630	769670		769670	[illegible]
19	18	40410		40410	810080		810080	[illegible]
20	19	44700		44700	854780		854780	44988
21	20	48020		48020	902800		902800	45140
22	[illegible]	33290		33290	936090		936090	44575
23	[illegible]	43880		43880	979970		979970	44544
24	23	45330		45330	1025300		1025300	44578
25	24	44550		44550	1069850		1069850	44577
26	25	[illegible]		50180	1120030		1120030	[illegible]
27	26	41185		41185	1161215		[illegible]	[illegible]
28	27	[illegible]		[illegible]	1214465		1214465	44980
29	28	47570		47570	[illegible]		[illegible]	45072

SA 067631

#11 September 1978

Date	Days worked	Today Mf	Today Carbon Issue	Today Total	To Date Mf	To Date Carbon Issue	To Date Total	To Date Average
8 [illegible]	1	37480		37480	37480		37480	[illegible]
29	2	48420		48420	85900		85900	[illegible]
30	3	46520		46520	132420		132420	[illegible]
31	4	15560	15860	31420	147980	15860	163840	[illegible]
9 1	5	[illegible]	27770	[illegible]	[illegible]	43630	191670	[illegible]
4	6	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	
6	7	41060		41060	215360	43630	258990	36990
7	8	35320		35320	250680	43630	294310	[illegible]
8	9	37560		37560	288240	43630	331870	[illegible]
9	10	39630		39630	327870	43630	371500	[illegible]
10	11	35700		35700	363570	43630	407200	37018
11	12	43060		43060	406630	43630	450260	37521
12	13	45470		45470	452100	43630	495730	38132
13	14	48790		48790	500890	43630	544520	38855
14	15	48920		48920	549810	43630	593440	[illegible]
15	16	30420		30420	579630	43630	623260	38953
16	16	Sunday						
18	17	39180		39180	618810	43630	662440	38967
19	18	36640		36640	655450	43630	699080	38837
20	19	36860		36860	692310	43630	735940	38733
21	20	40680		40680	732990	43630	776620	[illegible]
22	21	43980		43980	776970	43630	820600	39076
23	22	37280		37280	814250	43630	857880	[illegible]
24	23	44900		44900	859150	43630	902780	[illegible]
25	24	36940		36940	896090	43630	939720	39155
26	25	28950		28950	925040	43630	968670	[illegible]
27	26	40310		40310	965350	43630	1008980	[illegible]
28	27	36970		36970	1002320	43630	1046950	[illegible]
29	28	41790		41790	1044110	43630	1087740	38847

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Totals #10 - #11 Machines September 1978

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
8 28	1	80160		80160	80160		80160	80160
29	2	95710		95710	175870		175870	87935
30	3	97550		97550	273420		273420	91140
31	4	61170	15860	77030	334590	15860	350450	87612
9 1	5	43070	27770	70840	377660	43630	421290	84258
2	5	[illegible]						
4	5	[illegible]						
5	6	69190		69190	446850	43630	490480	81746
6	7	84910		84910	531760	43630	575390	82198
7	8	78970		78970	610730	43630	654360	81795
8	9	75430		75430	686160	43630	729790	81087
9	10	87630		87630	773790	43630	817420	81742
10	11	76490		76490	850280	43630	893910	81264
11	12	92610		92610	942890	43630	986520	82210
12	13	90150		90150	1033040	43630	1076670	82820
13	14	93450		93450	1126490	43630	1170120	83580
14	15	100970		100970	1227460	43630	1271090	84739
15	16	74210		74210	1301670	43630	1345300	84081
16	16	[illegible]						
18	17	86810		86810	1388480	43630	1432110	84241
19	18	77050		77050	1465530	43630	1509160	83842
20	19	81560		81560	1547090	43630	1590720	83722
21	20	88700		88700	1635790	43630	1679420	83971
22	21	77270		77270	1713060	43630	1756690	83651
23	22	81160		81160	1794220	43630	1837850	83535
24	23	90230		90230	1884450	43630	1928080	83829
25	24	81490		81490	1965940	43630	2009570	83732
26	25	79130		79130	2045070	43630	2088700	83548
27	26	81495		81495	2126565	43630	2170195	83469
28	27	90220		90220	2216785	43630	2260415	83719
29	28	89360		89360	2306145	43630	2349775	83920

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SA 067633

#10 October 1978

Date	Days worked	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total	Daily Average
10 2	1	37650		37650	37650		37650	37650
3	2	45590		45590	83240		83240	41620
4	3	39600		39600	122840		122840	40946
5	4	52480		52480	175320		175320	43830
6	5	45530		45530	220850		220850	44170
7	6	47500		47500	268350		268350	44725
8	7	48030		48030	316380		316380	45197
9	8	46500		46500	362880		362880	45360
10	9	44420		44420	407300		407300	45255
11	10	34860		34860	442160		442160	44216
12	11	33105		33105	475265		475265	43205
13	12	42560		42560	517825		517825	43152
14	12	Down						
16	13	11660		11660	529485		529485	40729
17	14	15980		15980	545465		545465	38961
18	15	47460		47460	592925		592925	39528
19	16	38990		38990	631915		631915	39494
20	17	44760		44760	676675		676675	39804
21	18	43970		43970	720645		720645	40035
22	19	48230		48230	768875		768875	40467
23	20	44470		44470	813345		813345	40667
24	21	41980		41980	855325		855325	40729
25	22	43130		43130	898455		898455	40838
26	23	41100		41100	939555		939555	40850
27	24	23420		23420	962975		962975	40123

[redacted]

SA 067634

#11 October 1978

	Today				To Date			
Date	Days worked	mf	Carbon Frame	Total	mf	Carbon Frame	Total	Daily Average
10 2	1	20820		20820	20820		20820	20820
3	2	34140		34140	54960		54960	27480
4	3	45520		45520	100480		100480	33493
5	4	50220		50220	150700		150700	37675
6	5	47000		47000	197700		197700	39540
7	6	53[illegible]		53[illegible]	[illegible]		[illegible]	[illegible]
8	7	47120		47120	279930		279930	[illegible]
9	8	49470		49470	347900		347900	43487
10	9	48940		48940	396840		396840	44093
11	10	48560		48560	445400		445400	44540
12	11	49670		49670	495070		495070	45006
13	12	44250		44250	539320		539320	44943
14	12	Down						
16	13	25180		25180	564500		564500	43423
17	14	25800		25800	590300		590300	42164
18	15	17250		17250	607550		607550	40503
19	16	46890		46890	654440		654440	40903
20	17	35570		35570	690010		690010	40588
21	18	35050		35050	725060		725060	40281
22	19	44270		44270	769330		769330	40491
23	20	35030		35030	804360		804360	40218
24	21	43180		43180	847540		847540	40359
25	22	42660		42660	890200		890200	40463
26	23	39600		39600	929800		929800	40426
27	24	39980		39980	969780		969780	40407

SA 097635

Totals #10 - #11 Machines October 1978

Date	Days Worked	Today Mf	Today Carbon Issue	Today Total	To Date Mf	To Date Carbon Issue	To Date Total	Daily Average
10 2	1	58470		58470	58470		58470	58470
3	2	79730		79730	138200		138200	69100
4	3	85120		85120	223320		223320	74440
5	4	102700		102700	326020		326020	81505
6	5	92530		92530	418550		418550	83710
7	6	101110		101110	519660		519660	86610
8	7	95150		95150	614810		614810	87830
9	8	95970		95970	710780		710780	88847
10	9	93360		93360	804140		804140	89348
11	10	83420		83420	887560		887560	88756
12	11	82775		82775	970335		970335	88212
13	12	86810		86810	1057145		1057145	88095
14	12	Down						
16	13	36840		36840	1093985		1093985	84152
17	14	41780		41780	1135765		1135765	81126
18	15	64710		64710	1200475		1200475	80031
19	16	85880		85880	1286355		1286355	80397
20	17	80330		80330	1366685		1366685	80393
21	18	79020		79020	1445705		1445705	80316
22	19	92500		92500	1538205		1538205	80958
23	20	79500		79500	1617705		1617705	80885
24	21	85160		85160	1702865		1702865	81088
25	22	85790		85790	1788655		1788655	81302
26	23	80700		80700	1869355		1869355	81276
27	24	62400		62400	1931755		1931755	80531

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SA 067636

Today. #10 November 1978 To Date

Date		Days Worked		Mf	Carbon Tissue	Total	Mf	Carbon Tissue	Total	Daily Average
10	30		1	37720		37720	37720		37720	37720
	31		2	32050		32050	69770		69770	34885
11	1		3	42240		42240	112010		112010	37336
	2		4	55120		55120	167130		167130	41782
	3		5	45250		45250	212380		212380	42476
	4		6	41420		41420	253800		253800	42300
	5		7	49640		49640	303440		303440	43348
	6		8	46530		46530	349970		349970	43746
	7		9	41520		41520	391490		391490	43498
	8		10	44340		44340	435830		435830	43583
	9		11	37450		37450	473280		473280	43025
	10		12	40940		40940	514220		514220	42851
	11		12	Down						
	13		13	37390		37390	551610		551610	42431
	14		14	25030		25030	576640		576640	41188
	15		15	46300		46300	622940		622940	41529
	16		16	42180		42180	665120		665120	41570
	17		17	51410		51410	716530		716530	42148
	18		18	53470		53470	770000		770000	42777
	19		19	53840		53840	823840		823840	43360
	20		20	35300		35300	859140		859140	42957
	21		21	37090		37090	896230		896230	42677
	22		22	47450		47450	943680		943680	42894
	23		23	38410		38410	982090		982090	42699
	24		24	44960		44960	1027050		1027050	42793

SA 067637

#11 November 1978

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
10 30	1	23960		23960	23960		23960	23960
31	2	38450		38450	62410		62410	31205
11 1	3	31130		31130	93540		93540	31180
2	4	40920		40920	134460		134460	33615
3	5	35590		35590	170050		170050	34010
4	6	23770		23770	193820		193820	32303
5	7	40410		40410	234230		234230	33461
6	8	39520		39520	273750		273750	34218
7	9	34920		34920	308670		308670	34276
8	10	41420		41420	350090		350090	35009
9	11	42420		42420	392510		392510	35682
10	12	34050		34050	426560		426560	35546
11	12	Down						
13	13	31230		31230	457790		457790	35214
14	14	26200		26200	483990		483990	34570
15	15	48400		48400	532390		532390	35492
16	16	44560		44560	576950		576950	36059
17	17	46160		46160	623110		623110	36653
18	18	42760		42760	665870		665870	36992
19	19	46040		46040	711910		711910	37468
20	20	44720		44720	756630		756630	37831
21	21	31200		31200	787830		787830	37515
22	22	45280		45280	833110		833110	37868
23	23	41170		41170	874280		874280	38012
24	24	48450		48450	922730		922730	38447

SA 067638

Totals #10 - #11 Machines November 1978

Date		Indexing Worker	Today my	Today Carbon Issue	Today Total	To Date my	To Date Carbon Issue	To Date Total	Daily Average
10	30	1	61680		61680	61680		61680	61680
	31	2	70500		70500	132180		132180	66090
11	1	3	73370		73370	205550		205550	68516
	2	4	96040		96040	301590		301590	75397
	3	5	80840		80840	382430		382430	76486
	4	6	65190		65190	447620		447620	74603
	5	7	90050		90050	537670		537670	76810
	6	8	86050		86050	623720		623720	77965
	7	9	76440		76440	700160		700160	77795
	8	10	85760		85760	785920		785920	78592
	9	11	79870		79870	865790		865790	78708
	10	12	74990		74990	940780		940780	78398
	11	12	Sunday						
	13	13	68620		68620	1009460		1009460	77646
	14	14	51230		51230	1060630		1060630	75759
	15	15	94700		94700	1155330		1155330	77022
	16	16	86740		86740	1242070		1242070	77629
	17	17	97570		97570	1339640		1339640	78802
	18	18	96230		96230	1435870		1435870	79770
	19	19	99880		99880	1535750		1535750	80828
	20	20	80020		80020	1615770		1615770	80788
	21	21	68290		68290	1684060		1684060	80193
	22	22	92730		92730	1776790		1776790	80763
	23	23	79580		79580	1856370		1856370	80711
	24	24	93410		93410	1949780		1949780	81240

SA 867639

#10 December 1978

Date	Days Worked	Today mg	Today Carbon Tissue	Today Total	To Date mg	To Date Carbon Tissue	To Date Total	Daily Average
11/27	1	43280		43280	43280		43280	43280
28	2	53760		53760	97040		97040	48520
29	3	49600		49600	146640		146640	48880
30	4	52390		52390	199030		199030	49757
12/1	5	52160		52160	251190		251190	50238
2	6	56260		56260	307450		307450	51241
3	7	52580		52580	360030		360030	51432
4	8	44540		44540	404570		404570	50571
5	9	41450		41450	446020		446020	49557
6	10	48290		48290	494310		494310	49431
7	11	47280		47280	541590		541590	49235
8	12	50220		50220	591810		591810	49317
9	12	Down						
11	13	35410		35410	627220		627220	48247
12	14	53540		53540	680760		680760	48625
13	15	46750		46750	727510		727510	48500
14	16	49820		49820	777330		777330	48583
15	17	22420		22420	799750		799750	47044
16	18	49290		49290	849040		849040	47168
17	19	49550		49550	898590		898590	47294
18	20	50050		50050	948640		948640	47432
19	21	56720		56720	1005360		1005360	47874
20	22	51500		51500	1056860		1056860	48039
21	23	17680		17680	1074540		1074540	46719
22	24	48190		48190	1122730		1122730	46780
23	25	39960		39960	1162690		1162690	46507
25	25	Holiday						
26	26	18720		18720	1181410		1181410	45438
27	27	28460		28460	1209870		1209870	44810
28	28	26380		26380	1236250		1236250	44151
29	29	32920		32920	1269170		1269170	43764
30	30	30250		30250	1299420		1299420	43314
31	31	31270		31270	1330690		1330690	42925

SA 867640

#11 December 1978

Date	Days Worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
11 27	1	25020		25020	25020		25020	25020
28	2	41160		41160	66180		66180	33090
29	3	30500		30500	96680		96680	32226
30	4	36010		36010	132690		132690	33172
12 1	5	39030		39030	171720		171720	34344
2	6	36870		36870	208590		208590	34765
3	7	31910		31910	240500		240500	34357
4	8	38800		38800	279300		279300	34912
5	9	40490		40490	319790		319790	35532
6	10	39210		39210	359000		359000	35900
7	11	37160		37160	396160		396160	36014
8	12	25560		25560	421720		421720	35143
9	12	Down						
11	13	20810		20810	442530		442530	34040
12	14	25990		25990	468520		468520	33465
13	15	33440		33440	501960		501960	33464
14	16	39080		39080	541040		541040	33815
15	17	21560		21560	562600		562600	33094
16	18	33620		33620	596220		596220	33123
17	19	41540		41540	637760		637760	33566
18	20	27920		27920	665680		665680	33284
19	21	24850		24850	690530		690530	32882
20	22	27860		27860	718390		718390	32654
21	23	28340		28340	746730		746730	32466
22	24	28060		28060	774790		774790	32282
23	25	25020		25020	799810		799810	31992
25	25	Holiday						
26	26	31590		31590	831400		831400	31976
27	27	37700		37700	869100		869100	32188
28	28	36290		36290	905390		905390	32336
29	29	29430		29430	934820		934820	32235
30	30	41730		41730	976550		976550	32551
31	31	40875		40875	1017425		1017425	32820

SA 067641

Totals #10 - #11 Machines

Date		Days worked	Today Mf	Carbon Tissue	Total	To Date Mf	Carbon Tissue	Total	Daily Average
11	27	1	68300		68300	68300		68300	68300
	28	2	94920		94920	163220		163220	81610
	29	3	80100		80100	243320		243320	81106
	30	4	88400		88400	331720		331720	82930
12	1	5	91190		91190	422910		422910	84582
	2	6	93130		93130	516040		516040	86006
	3	7	84490		84490	600530		600530	85790
	4	8	83340		83340	683870		683870	85483
	5	9	81940		81940	765810		765810	85090
	6	10	87500		87500	853310		853310	85331
	7	11	84440		84440	937750		937750	85250
	8	12	75780		75780	1013530		1013530	84460
	9	12	Down						
	11	13	56220		56220	1069750		1069750	82288
	12	14	79530		79530	1149280		1149280	82091
	13	15	80190		80190	1229470		1229470	81964
	14	16	88900		88900	1318370		1318370	82398
	15	17	43980		43980	1362350		1362350	80138
	16	18	82910		82910	1445260		1445260	80292
	17	19	91090		91090	1536350		1536350	80860
	18	20	77970		77970	1614320		1614320	80716
	19	21	81570		81570	1695890		1695890	80756
	20	22	79360		79360	1775250		1775250	80693
	21	23	46020		46020	1821270		1821270	79185
	22	24	76250		76250	1897520		1897520	79063
	23	25	64980		64980	1962500		1962500	78500
	25	25	Holiday						
	26	26	50310		50310	2012810		2012810	77445
	27	27	66160		66160	2078970		2078970	76998
	28	28	62670		62670	2141640		2141640	76487
	29	29	62350		62350	2203990		2203990	75999
	30	30	71980		71980	2275970		2275970	75865
	31	31	72145		72145	2348115		2348115	75745

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SA 067642

#10 January 1979

Dates	Days worked	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	Daily Average
1	1	26170		26170	26170		26170	26170
2	2	23260		23260	49430		49430	24715
3	3	35630		35630	85060		85060	28353
4	4	34050		34050	119110		119110	29777
5	5	39780		39780	158890		158890	31778
6	6	42050		42050	200940		200940	33490
7	7	40510		40510	241450		241450	34492
8	8	39830		39830	281280		281280	35160
9	9	35300		35300	316580		316580	35175
10	10	39280		39280	355860		355860	35586
11	11	27600		27600	383460		383460	34860
12	12	14580		14580	398040		398040	33170
13	13	42960		42960	441000		441000	33923
14	14	30750		30750	471750		471750	33696
15	15	49330		49330	521080		521080	34738
16	16	46360		46360	567440		567440	35465
17	17	44550		44550	611990		611990	35999
18	18	40530		40530	652520		652520	36251
19	19	47180		47180	699700		699700	36826
20	20	53340		53340	753040		753040	37652
21	21	51780		51780	804820		804820	38324
22	22	45570		45570	850390		850390	38654
23	23	48920		48920	899310		899310	39100
24	24	44280		44280	943590		943590	39316
26	25	52650		52650	996240		996240	39849
27	26	22560		22560	1018800		1018800	39184
27	27	20600		20600	1039400		1039400	38496
28	28	44130		44130	1083530		1083530	38698

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867643

#11 January 1979

Date	Days worked	Today: Mf	Today: Carbon Tissue	Today: Total	To Date: Mf	To Date: Carbon Tissue	To Date: Total	Daily Average
1 1	1	39940		39940	39940		39940	39940
2	2	37730		37730	77670		77670	38835
3	3	32510		32510	110180		110180	36722
4	4	40890		40890	151070		151070	37767
5	5	43720		43720	194790		194790	38958
6	6	40530		40530	235320		235320	39220
7	7	33650		33650	268970		268970	38424
8	8	39290		39290	308260		308260	38532
9	9	37440		37440	345700		345700	38411
10	10	18520		18520	364220		364220	36422
11	11	36840		36840	401060		401060	36460
12	12	38440		38440	439500		439500	36625
13	13	40680		40680	480180		480180	36736
14	14	40480		40480	520660		520660	37190
15	15	44650		44650	565310		565310	37687
16	16	35920		35920	601230		601230	37576
17	17	31770		31770	633000		633000	37235
18	18	41380		41380	674380		674380	37465
19	19	43140		43140	717520		717520	37764
20	20	38320		38320	755840		755840	37792
21	21	41910		41910	797750		797750	37988
22	22	27230		27230	824980		824980	37497
23	23	12900		12900	837880		837880	36429
24	24	33880		33880	871760		871760	36323
25	25	28060		28060	899820		899820	35992
26	26	26640		26640	926460		926460	35633
27	27	31240		31240	957700		957700	35470
28	28	34360		34360	992060		992060	35430

SA 067644

Totals #10 - #11 Machines

January 1917

Date	# Days Worked	Today's Total my	Today's Total Carbon Issue	Today's Total Total	To Date my	To Date Carbon Issue	To Date Total	Daily Average
1	1	66110		66110	66110		66110	66110
2	2	60990		60990	127100		127100	63550
3	3	68140		68140	195240		195240	65080
4	4	74940		74940	270180		270180	67545
5	5	83500		83500	353680		353680	70736
6	6	82580		82580	436260		436260	72710
7	7	74160		74160	510420		510420	72917
8	8	79120		79120	589540		589540	73692
9	9	72740		72740	662280		662280	73586
10	10	57800		57800	720080		720080	72008
11	11	64440		64440	784520		784520	71320
12	12	53020		53020	837540		837540	69795
13	13	83640		83640	921180		921180	70860
14	14	71230		71230	992410		992410	70886
15	15	93980		93980	1086390		1086390	72426
16	16	82280		82280	1168670		1168670	73041
17	17	76320		76320	1244990		1244990	73234
18	18	81910		81910	1326900		1326900	73716
19	19	90320		90320	1417220		1417220	74590
20	20	91660		91660	1508880		1508880	75444
21	21	93690		93690	1602570		1602570	76312
22	22	72800		72800	1675370		1675370	76153
23	23	61820		61820	1737190		1737190	75530
24	24	78160		78160	1815350		1815350	75639
25	25	80710		80710	1896060		1896060	75842
26	26	49200		49200	1945260		1945260	74817
27	27	51840		51840	1997100		1997100	73966
28	28	78490		78490	2075590		2075590	74128

SA 867645

#10 February 1979

Date	Days worked	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total	Daily Average
1 29	1	40270		40270	40270		40270	40270
30	2	40940		40940	81210		81210	40605
31	3	55575		55575	136785		136785	45595
2 1	4	55810		55810	192595		192595	48148
2	5	28900		28900	221495		221495	44299
3	6	46830		46830	268325		268325	44721
4	7	48660		48660	316985		316985	45283
5	8	30560		30560	347545		347545	43443
6	9	37260		37260	384805		384805	42756
7	10	17000		17000	401805		401805	40180
8	11	39030		39030	440835		440835	40075
9	12	12000		12000	452835		452835	37736
10	13	42150		42150	494985		494985	38075
11	14	37480		37480	532465		532465	38033
12	15	37160		37160	569625		569625	37975
13	16	38860		38860	608485		608485	38030
14	17	35890		35890	644375		644375	37904
15	18	48190		48190	692565		692565	38475
16	19	28630		28630	721195		721195	37957
17	20	37720		37720	758915		758915	37946
18	21	36030		36030	794945		794945	37854
19	22	28380		28380	823325		823325	37423
20	23	35000		35000	858325		858325	37318
21	24	21460		21460	879785		879785	36657
22	25	15400		15400	895185		895185	35807
23	26	42640		42640	937825		937825	36070
24	27	29210		29210	967035		967035	35816
25	28	34910		34910	1001945		1001945	35783

Date

SA 067646

#11 February 1979

	Today				To Date			
Date	Days Worked	My	Carbon Tissue	Total	My	Carbon Tissue	Total	Daily Average
29	1	20520		20520	20520		20520	20520
30	2	33620		33620	54140		54140	27070
31	3	34460		34460	88600		88600	29533
21	4	40380		40380	128980		128980	32245
2	5	21160		21160	150140		150140	30028
3	6	32760		32760	182900		182900	30483
4	7	30960		30960	213860		213860	30551
5	8	23620		23620	237480		237480	29685
6	9	30730		30730	268210		268210	29801
7	10	33700		33700	301910		301910	30191
8	11	39200		39200	341110		341110	31010
9	12	35600		35600	376710		376710	31392
10	13	33090		33090	409800		409800	31523
11	14	43460		43460	453260		453260	32375
12	14	Plan. Maint			453260		453260	32375
13	15	30290		30290	483550		483550	32236
14	16	37620		37620	521170		521170	32573
15	17	39640		39640	560810		560810	32988
16	18	37200		37200	598010		598010	33222
17	19	37760		37760	635770		635770	33461
18	20	43300		43300	679070		679070	33953
19	21	28835		28835	707905		707905	33709
20	22	42940		42940	750845		750845	34129
21	23	42760		42760	793605		793605	34504
22	24	39320		39320	832925		832925	34705
23	25	39060		39060	871985		871985	34879
24	26	41780		41780	913765		913765	35144
25	27	44520		44520	958285		958285	35492

SA 067647

Tabulation #10-#11 Machine

February 1975

Seq.	Tabulation Number	Tabulation Time	Tabulation Date	Tabulation Machine	Tabulation Operator	Tabulation Machine	Tabulation Operator	Tabulation Machine	Tabulation Operator
1	00790	00790	00790			00790	00790	00790	00790
2	74560	74560	74560			74560	74560	74560	74560
3	00035	00035	00035			00035	00035	00035	00035
4	96176	96176	96176			96176	96176	96176	96176
5	55000	55000	55000			55000	55000	55000	55000
6	79990	79990	79990			79990	79990	79990	79990
7	79630	79630	79630			79630	79630	79630	79630
8	55180	55180	55180			55180	55180	55180	55180
9	67990	67990	67990			67990	67990	67990	67990
10	50700	50700	50700			50700	50700	50700	50700
11	78330	78330	78330			78330	78330	78330	78330
12	47600	47600	47600			47600	47600	47600	47600
13	75346	75346	75346			75346	75346	75346	75346
14	80946	80946	80946			80946	80946	80946	80946
15	37160	37160	37160			37160	37160	37160	37160
16	69160	69160	69160			69160	69160	69160	69160
17	73510	73510	73510			73510	73510	73510	73510
18	87730	87730	87730			87730	87730	87730	87730
19	65830	65830	65830			65830	65830	65830	65830
20	75480	75480	75480			75480	75480	75480	75480
21	79330	79330	79330			79330	79330	79330	79330
22	57315	57315	57315			57315	57315	57315	57315
23	77940	77940	77940			77940	77940	77940	77940
24	64030	64030	64030			64030	64030	64030	64030
25	54720	54720	54720			54720	54720	54720	54720
26	81700	81700	81700			81700	81700	81700	81700
27	70990	70990	70990			70990	70990	70990	70990
28	79430	79430	79430			79430	79430	79430	79430
29	19600230	19600230	19600230			19600230	19600230	19600230	19600230

SA 067648

#10 March 1979

Date	Charge Number		Today m³	Carbon Issue	Total	To Date m³	Carbon Issue	Total	Daily Average
27		1	42170		42170	42170		42170	42170
27		1	Broken						
28		2	39700		39700	81870		81870	40935
31		3	38590		38590	120460		120460	40153
2		4	49260		49260	169720		169720	42430
3		5	47810		47810	217530		217530	43506
4		6	49790		49790	267320		267320	44553
5		7	49350		49350	316670		316670	45238
6		8	45640		45640	362310		362310	45288
7		9	54420		54420	416730		416730	46303
8		10	53520		53520	470250		470250	47025
9		11	44660		44660	514910		514910	46810
10		12	44800		44800	559710		559710	46642
11		13	41470		41470	601180		601180	46244
12		14	43710		43710	644890		644890	46063
13		15	53980		53980	698870		698870	46591
14		16	50780		50780	749650		749650	46853
15		17	42620		42620	792270		792270	46604
16		18	49520		49520	841790		841790	46766
17		19	49720		49720	891510		891510	46921
18		20	30800		30800	922310		922310	46115
19		21	43165		43165	965475		965475	45975
20		22	46050		46050	1011525		1011525	45978
21		23	52760		52760	1064285		1064285	46273
22		24	30420		30420	1094705		1094705	45612
23		25	45380		45380	1140085		1140085	45603
24		26	48300		48300	1188385		1188385	45707
25		27	45590		45590	1233975		1233975	45702
26		28	41980		41980	1275955		1275955	45569
27		29	41340		41340	1317295		1317295	45423
28		30	46520		46520	1363815		1363815	45460
29		31	34140		34140	1397955		1397955	45095
30		32	55060		55060	1453015		1453015	
31		33	54995		54995	1508010		1508010	
4 1		34	39400		39400	1547410		1547410	

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SA 867649

#11 March 1919

Date	Days Worked	Today Tons	Today Cigarettes Issued	Today Total	To Date Tons	To Date Cigarettes Issued	To Date Total	Daily Average
26	1	38400		38400	38400		38400	38400
27	1	Sunday						
28	2	33160		33160	71560		71560	35780
31	3	38060		38060	109620		109620	36540
2	4	38185		38185	147805		147805	36951
3	5	39360		39360	187165		187165	37433
4	6	41475		41475	228640		228640	38106
5	7	40870		40870	269510		269510	38501
6	8	34380		34380	303890		303890	37986
7	9	35075		35075	338965		338965	37662
8	10	37200		37200	376165		376165	37616
9	11	34425		34425	410590		410590	37326
10	12	41375		41375	451965		451965	37663
11	13	38510		38510	490475		490475	37728
12	14	31485		31485	521960		521960	37282
13	15	37770		37770	559730		559730	37315
14	16	33745		33745	593475		593475	37092
15	17	38525		38525	632000		632000	37176
16	18	35535		35535	667535		667535	37085
17	18½	23385		23385	690920		690920	37347
18	19½	47010		47010	737930		737930	37842
19	20½	26305		26305	764235		764235	37279
20	21½	42365		42365	806600		806600	37516
21	22½	39975		39975	846575		846575	37625
22	23½	44850		44850	891425		891425	37932
23	24½	34600		34600	926025		926025	37796
24	25½	41865		41865	967890		967890	37956
25	26½	36695		36695	1004585		1004585	37908
26	27½	40335		40335	1044920		1044920	37997
27	28½	17805		17805	1062725		1062725	37288
28	29½	35400		35400	1098125		1098125	37224
29	30½	22850		22850	1120975		1120975	36753
30	31	900		900	1121875		1121875	
31	32	34265		34265	1156140		1156140	
4/1	33	38545		38545	1194685		1194685	

SA 867658

Totals #10 - #11 Machines March 1979

Date	Days Worked		Today	Carbon Issue	Total		To Date	Carbon Issue	Total	Daily Average
2/26		1	80570		80570		80570		80570	80570
27		2	72860		72860		153430		153430	76715
3/1		3	76650		76650		230080		230080	76693
2		4	87445		87445		317525		317525	79381
3		5	87170		87170		404695		404695	80939
4		6	91265		91265		495960		495960	82660
5		7	90220		90220		586180		586180	83740
6		8	80020		80020		666200		666200	83275
7		9	89495		89495		755695		755695	83946
8		10	90720		90720		846415		846415	84641
9		11	79085		79085		925500		925500	84136
10		12	86175		86175		1011675		1011675	84306
11		13	79980		79980		1091655		1091655	83973
12		14	75195		75195		1166850		1166850	83346
13		15	91750		91750		1258600		1258600	83906
14		16	84525		84525		1343125		1343125	83945
15		17	81145		81145		1424270		1424270	83780
16		18	85055		85055		1509325		1509325	83851
17	#10 #11	19 18½	73105		73105		1582430		1582430	84268
18	#10 #11	20 19½	77810		77810		1660240		1660240	83957
19	#10 #11	21 20½	69470		69470		1729710		1729710	83254
20	#10 #11	22 21½	88415		88415		1818125		1818125	83494
21	#10 #11	23 22½	92735		92735		1910860		1910860	83898
22	#10 #11	24 23½	75270		75270		1986130		1986130	83544
23	#10 #11	25 24½	79980		79980		2066110		2066110	83399
24	#10 #11	26 25½	90165		90165		2156275		2156275	83663
25	#10 #11	27 26½	82285		82285		2238560		2238560	83610
26	#10 #11	28 27½	82315		82315		2320875		2320875	83566
27	#10 #11	29 28½	59145		59145		2380020		2380020	82711
28	#10 #11	30 29½	81920		81920		2461940		2461940	82684
29	#10 #11	31 29½	56990		56990		2518930		2518930	81848
30	#10 #11	32	55960		55960		2574890		2574890	
31		33	89260		89260		2664150		2664150	
4/1			77945		77945		2742095		2742095	

SA 867651

#10 April 1979

Date	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total
2	52020		52020	52020		52020
3	51060		51060	103080		103080
4	15230		15230	118310		118310
5	41010		41010	159320		159320
6	3000		3000	162320		162320
7	51550		51550	213870		213870
8	42930		42930	256800		256800
9	43570		43570	300370		300370
10	33070		33070	333440		333440
11	44160		44160	377600		377600
12	35350		35350	412950		412950
13	50040		50040	462990		462990
14	39530		39530	502520		502520
15	48180		48180	550700		550700
16	22010		22010	572710		572710
17	44100		44100	616810		616810
18	30400		30400	647210		647210
19	7540		7540	654750		654750
20	28300		28300	683050		683050
21	44710		44710	727760		727760
22	42520		42520	770280		770280
23	31500		31500	801780		801780
24	3300		3300	805080		805080
25	26805		26805	831885		831885
26	37800		37800	869685		869685
27	41970		41970	911655		911655
28	47840		47840	959495		959495
29	45780		45780	1005275		1005275

SA 867652

#11 April 1979

Date	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total
4 2	41280		41280	41280		41280
3	35695		35695	76975		76975
4	26350		26350	103325		103325
5	29740		29740	133065		133065
6	32105		32105	165170		165170
7	41725		41725	206915		206915
8	41410		41410	248325		248325
9	41745		41745	290070		290070
10	28535		28535	318605		318605
11	40810		40810	359415		359415
12	20180		20180	379595		379595
13	41400		41400	420995		420995
14	35746		35746	456741		456741
15	36110		36110	492851		492851
16	31678		31678	524529		524529
17	28070		28070	552599		552599
18	37050		37050	589649		589649
19	39745		39745	629394		629394
20	29505		29505	658899		658899
21	37400		37400	696299		696299
22	44410		44410	740709		740709
23	40980		40980	781689		781689
24	37315		37315	819004		819004
25	43155		43155	862159		862159
26	33880		33880	896039		896039
27	43055		43055	939094		939094
28	42330		42330	981424		981424
29	41215		41215	1022639		1022639

SA 867653

Totals #10-#11 machines April 1979

Date	my	Carbon Issue	Total	my	Carbon Issue	Total
4 2	93300		93300	93300		93300
3	86755		86755	180055		180055
4	41580		41580	221635		221635
5	70750		70750	292385		292385
6	35125		35125	327510		327510
7	93275		93275	420785		420785
8	84340		84340	505125		505125
9	85315		85315	590440		590440
10	61605		61605	652045		652045
11	84970		84970	737015		737015
12	55530		55530	792545		792545
13	91440		91440	883985		883985
14	75276		75276	959261		959261
15	84290		84290	1043551		1043551
16	53688		53688	1097239		1097239
17	72170		72170	1169409		1169409
18	67450		67450	1236859		1236859
19	47285		47285	1284144		1284144
20	57805		57805	1341949		1341949
21	82110		82110	1424059		1424059
22	86930		86930	1510989		1510989
23	72480		72480	1583469		1583469
24	40615		40615	1624084		1624084
25	69960		69960	1694044		1694044
26	71680		71680	1765724		1765724
27	85025		85025	1850749		1850749
28	90170		90170	1940919		1940919
29	86995		86995	2027914		2027914

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SA 867654

#10 May 1979

Date	Today mf	Today Carbon Frame	Today Total	To Date mf	To Date Carbon Frame	To Date Total
4 30	53230		53230	53230		53230
5 1	20670		20670	73900		73900
2	35030		35030	108930		108930
3	49200		49200	158130		158130
4	48890		48890	207020		207020
5	48490		48490	255510		255510
6	52220		52220	307730		307730
7	50300		50300	358030		358030
8	36700		36700	394730		394730
9	38650		38650	433380		433380
10	26280		26280	459660		459660
11	38450		38450	498110		498110
12	37490		37490	535600		535600
13	33190		33190	568790		568790
14	33135		33135	601925		601925
15	18560		18560	620485		620485
16	42900		42900	663385		663385
17	49610		49610	712995		712995
18	37490		37490	750485		750485
19	48580		48580	799065		799065
20	26350		26350	825415		825415
21	43960		43960	869375		869375
22	19880		19880	889255		889255
23	35760		35760	925015		925015
24	13300		13300	938315		938315
25	37360		37360	975675		975675
26	39190		39190	1014865		1014865
27	35880		35880	1050745		1050745

SA 867655

#11 May 1979

Date	Today: Mf	Today: Carbon Tissue	Today: Total	To Date: Mf	To Date: Carbon Tissue	To Date: Total
4 30	47270		47270	47270		47270
5 1	29490		29490	76760		76760
2	44575		44575	121335		121335
3	44670		44670	166005		166005
4	45280		45280	211285		211285
5	44390		44390	255675		255675
6	47600		47600	303275		303275
7	40310		40310	343585		343585
8	45240		45240	388825		388825
9	20750		20750	409575		409575
10	38110		38110	447685		447685
11	27725		27725	475410		475410
12	26060		26060	501470		501470
13	36340		36340	537810		537810
14	37235		37235	575045		575045
15	36405		36405	611450		611450
16	16430		16430	627880		627880
17	33190		33190	661070		661070
18	29200		29200	690270		690270
19	35610		35610	725880		725880
20	36265		36265	762145		762145
21	20430		20430	782575		782575
22	41810		41810	824385		824385
23	27600		27600	851985		851985
24	31530		31530	883515		883515
25	34070		34070	917585		917585
26	31500		31500	949085		949085
27	33520		33520	982605		982605

SA 067656

Totals #10 - #11 Machines May 1979

Date	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total
4 30	100500		100500	100500		100500
5 1	50160		50160	150660		150660
2	79605		79605	230265		230265
3	93870		93870	324135		324135
4	94170		94170	418305		418305
5	92880		92880	511185		511185
6	99820		99820	611005		611005
7	90610		90610	701615		701615
8	81940		81940	783555		783555
9	59400		59400	842955		842955
10	64390		64390	907345		907345
11	66175		66175	973520		973520
12	63550		63550	1037070		1037070
13	69530		69530	1106600		1106600
14	70370		70370	1176970		1176970
15	54965		54965	1231935		1231935
16	59330		59330	1291265		1291265
17	82800		82800	1374065		1374065
18	66690		66690	1440755		1440755
19	84190		84190	1524945		1524945
20	62615		62615	1587560		1587560
21	64390		64390	1651950		1651950
22	61690		61690	1713640		1713640
23	63360		63360	1777000		1777000
24	44830		44830	1821830		1821830
25	71430		71430	1893260		1893260
26	70690		70690	1963950		1963950
27	69400		69400	2033350		2033350

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SA 067657

#10 June 1979

Date	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total	
5 28	44760		44760	44760		44760	
29	34170		34170	78930		78930	
30	32830		32830	111760		111760	
31	41090		41090	152850		152850	
6 1	24180		24180	177030		177030	
2	36210		36210	213240		213240	
3	36170		36170	249410		249410	
4	39900		39900	289310		289310	
5	48790		48790	338100		338100	
6	30595		30595	368695		368695	
7	36710		36710	405405		405405	
8	38900		38900	444305		444305	
9	44820		44820	489125		489125	
10	31110		31110	520235		520235	
11	39730		39730	559965		559965	
12	32625		32625	592590		592590	
13	39220		39220	631810		631810	
14	5920		5920	637730		637730	
15				637730		637730	Trial
16	30050		30050	667780		667780	
17	47210		47210	714990		714990	
18	40680		40680	755670		755670	
19	53850		53850	809520		809520	
20	46020		46020	855540		855540	
21	38680		38680	894220		894220	
22	44920		44920	939140		939140	
23	37830		37830	976970		976970	
24	52660		52660	1029630		1029630	
25	49170		49170	1078800		1078800	
26	28320		28320	1107120		1107120	
27	40800		40800	1147920		1147920	
28	45120		45120	1193040		1193040	
29	43570		43570	1236610		1236610	
30	45760		45760	1282370		1282370	

SA 067658

#11 June 1979

Date	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total
5 28	37160		37160	37160		37160
29	30080		30080	67240		67240
30	30250		30250	97490		97490
31	39780		39780	137270		137270
6 1	17520		17520	154790		154790
2	36100		36100	190890		190890
3	34890		34890	225780		225780
4	34320		34320	260100		260100
5	41150		41150	301250		301250
6	41970		41970	343220		343220
7	34130		34130	377350		377350
8	39750		39750	417100		417100
9	41930		41930	459030		459030
10	40800		40800	499830		499830
11	34390		34390	534220		534220
12	32580		32580	566800		566800
13	31926		31926	598726		598726
14	40260		40260	638986		638986
15	36380		36380	675366		675366
16	37840		37840	713206		713206
17	32440		32440	745646		745646
18	17320		17320	762966		762966
19	29080		29080	792046		792046
20	36670		36670	828716		828716
21	40060		40060	868776		868776
22	35740		35740	904516		904516
23	29230		29230	933746		933746
24	35850		35850	969596		969596
25	36420		36420	1006016		1006016
26	38940		38940	1044956		1044956
27	6865		6865	1051821		1051821
28	36650		36650	1088471		1088471
29	39980		39980	1128451		1128451
30	38495		38495	1166946		1166946

SR 067659

Corors #10-#11 Machines June 1979

Date	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total
5 28	81920		81920	81920		81920
29	64250		64250	146170		146170
30	63080		63080	209250		209250
31	80870		80870	290120		290120
6 1	41700		41700	331820		331820
2	72310		72310	404130		404130
3	71060		71060	475190		475190
4	74220		74220	549410		549410
5	89940		89940	639350		639350
6	72565		72565	711915		711915
7	70840		70840	782755		782755
8	78650		78650	861405		861405
9	86750		86750	948155		948155
10	71910		71910	1020065		1020065
11	74120		74120	1094185		1094185
12	65205		65205	1159390		1159390
13	71146		71146	1230536		1230536
14	46180		46180	1276716		1276716
15	36380		36380	1313096		1313096
16	67890		67890	1380986		1380986
17	79650		79650	1460636		1460636
18	58000		58000	1518636		1518636
19	82930		82930	1601566		1601566
20	82690		82690	1684256		1684256
21	78740		78740	1762996		1762996
22	80660		80660	1843656		1843656
23	67060		67060	1910716		1910716
24	88510		88510	1999226		1999226
25	85590		85590	2084816		2084816
26	67260		67260	2152076		2152076
27	47665		47665	2199741		2199741
28	81770		81770	2281511		2281511
29	83550		83550	2365061		2365061
30	84255		84255	2449316		2449316

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SA 067660

10 July 1979

Date	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total
1	55460		55460	55460		55460
2	50710		50710	106170		106170
3	39440		39440	145610		145610
4	Holiday					
5	37560		37560	183170		183170
6	47865		47865	231035		231035
7	49720		49720	280755		280755
8	46160		46160	326915		326915
9	30060		30060	356975		356975
10	54540		54540	411515		411515
11	49650		49650	461165		461165
12	48360		48360	509525		509525
13	33770		33770	543295		543295
14	48650		48650	591945		591945
15	47480		47480	639425		639425
16	40560		40560	679985		679985
17	53820		53820	733805		733805
18	52180		52180	785985		785985
19	34170		34170	820155		820155
20	44180		44180	864335		864335
21	46460		46460	910795		910795
22	54490		54490	965285		965285
23	41430		41430	1006715		1006715
24	58560		58560	1065275		1065275
25	26980		26980	1092255		1092255
26	50100		50100	1142355		1142355
27	41540		41540	1183895		1183895
28	44720		44720	1228615		1228615
29	29310		29310	1257925		1257925

SA 067661

11 July 1979

Date	Today: mf	Today: Carbon Tissue	Today: Total	To Date: mf	To Date: Carbon Tissue	To Date: Total
71	36990		36990	36990		36990
2	35140		35140	72130		72130
3	25455		25455	97585		97585
4	Holiday					
5	10360		10360	107945		107945
6	39770		39770	147715		147715
7	40680		40680	188395		188395
8	39620		39620	228015		228015
9	39930		39930	267945		267945
10	36775		36775	304720		304720
11	40405		40405	345125		345125
12	19980		19980	365105		365105
13	30080		30080	395185		395185
14	30855		30855	426040		426040
15	33890		33890	459930		459930
16	35660		35660	495590		495590
17	28765		28765	524355		524355
18	44575		44575	568930		568930
19	24380		24380	593310		593310
20	36025		36025	629335		629335
21	40315		40315	669650		669650
22	26785		26785	696435		696435
23	23540		23540	719975		719975
24	44640		44640	764615		764615
25	30800		30800	795415		795415
26	39520		39520	834935		834935
27	38240		38240	873175		873175
28	40390		40390	913565		913565
29	29980		29980	943545		943545

SA 067662

Totals #10 - #11 Machines July 1979

Date	Today Pay	Today Carton Issue	Today Total	To Date Pay	To Date Carton Issue	To Date Total
1	92450		92450	92450		92450
2	85850		85850	178300		178300
3	64895		64895	243195		243195
4	Holiday					
5	47920		47920	291115		291115
6	87635		87635	378750		378750
7	90400		90400	469150		469150
8	85780		85780	554930		554930
9	69990		69990	624920		624920
10	91315		91315	716235		716235
11	90055		90055	806290		806290
12	68340		68340	874630		874630
13	63850		63850	938480		938480
14	79505		79505	1017985		1017985
15	81370		81370	1099355		1099355
16	76220		76220	1175575		1175575
17	82585		82585	1258160		1258160
18	96755		96755	1354915		1354915
19	58550		58550	1413465		1413465
20	80205		80205	1493670		1493670
21	86775		86775	1580445		1580445
22	81275		81275	1661720		1661720
23	64970		64970	1726690		1726690
24	103200		103200	1829890		1829890
25	57780		57780	1887670		1887670
26	89620		89620	1977290		1977290
27	79780		79780	2057070		2057070
28	85110		85110	2142180		2142180
29	59290		59290	2201470		2201470

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SA 067663

#10 August 1979

Date	Today mf	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total
7 30	47520		47520	47520		47520
31	—		—	47520		47520
8 1	23530		23530	71050		71050
2	53760		53760	124810		124810
3	34220		34220	159030		159030
4	50575		50575	209605		209605
5	41480		41480	251085		251085
6	49670		49670	300755		300755
7	51190		51190	351945		351945
8	47220		47220	399165		399165
9	48180		48180	447345		447345
10	10120		10120	457465		457465
11	41470		41470	498935		498935
12	52430		52430	551365		551365
13	38160		38160	589525		589525
14	21210		21210	610735		610735
15	50240		50240	660975		660975
16	38560		38560	699535		699535
17	40350		40350	739885		739885
18	46340		46340	786225		786225
19	46140		46140	832365		832365
20	47790		47790	880155		880155
21	49740		49740	929895		929895
22	31240		31240	961135		961135
23	43240		43240	1004375		1004375
24	47600		47600	1051975		1051975
25	45660		45660	1097635		1097635
26	39720		39720	1137355		1137355

SA 067664

#11 August 1979

Date	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total
7 30	36385		36385	36385		36385
31	37380		37380	73765		73765
8 1	33950		33950	107715		107715
2	43805		43805	151520		151520
3	34575		34575	186095		186095
4	37465		37465	223560		223560
5	40940		40940	264500		264500
6	7860		7860	272360		272360
7	40640		40640	313000		313000
8	29585		29585	342585		342585
9	36980		36980	379565		379565
10	32905		32905	412470		412470
11	36040		36040	448510		448510
12	39340		39340	487850		487850
13	39915		39915	527765		527765
14	29830		29830	557595		557595
15	42370		42370	599965		599965
16	—		—	599965		599965
17	28935		28935	628900		628900
18	42515		42515	671415		671415
19	42885		42885	714300		714300
20	47420		47420	761720		761720
21	46350		46350	808070		808070
22	45585		45585	853655		853655
23	47585		47585	901240		901240
24	38350		38350	939590		939590
25	41500		41500	981090		981090
26	34310		34310	1015400		1015400

SA 067665

Totals #10 - #11 Machines

August 1979

Date	Today My	Today Carbon Issue	Today Total	To Date My	To Date Carbon Issue	To Date Total
7 30	83905		83905	83905		83905
31	37380		37380	121285		121285
8 1	57480		57480	178765		178765
2	97565		97565	276330		276330
3	68795		68795	345125		345125
4	88040		88040	433165		433165
5	82420		82420	515585		515585
6	57530		57530	573115		573115
7	91830		91830	664945		664945
8	76805		76805	741750		741750
9	85160		85160	826910		826910
10	43025		43025	869935		869935
11	77510		77510	947445		947445
12	91770		91770	1039215		1039215
13	78075		78075	1117290		1117290
14	51040		51040	1168330		1168330
15	92610		92610	1260940		1260940
16	38560		38560	1299500		1299500
17	69285		69285	1368785		1368785
18	88855		88855	1457640		1457640
19	89025		89025	1546665		1546665
20	95210		95210	1641875		1641875
21	96090		96090	1737965		1737965
22	76825		76825	1814790		1814790
23	90825		90825	1905615		1905615
24	85950		85950	1991565		1991565
25	87160		87160	2078725		2078725
26	74030		74030	2152755		2152755

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SA 867666

#10 · September 1979

Date	Today mf.	Today Carbon Issue	Today Total	To Date mf	To Date Carbon Issue	To Date Total
8 27	36470		36470	36470		36470
28	44310		44310	80780		80780
29	46860		46860	127640		127640
30	39890		39890	167530		167530
31	44720		44720	212250		212250
9 1	43640		43640	255890		255890
2	45210		45210	301100		301100
3	49630		49630	350730		350730
4	38600		38600	389330		389330
5	41910		41910	431240		431240
6	46560		46560	477800		477800
7	32140		32140	509940		509940
8	45720		45720	555660		555660
9	56110		56110	611770		611770
10	31740		31740	643510		643510
11	52530		52530	696040		696040
12	36790		36790	732830		732830
13	46275		46275	779105		779105
14	48570		48570	827675		827675
15	45050		45050	872725		872725
16	46650		46650	919375		919375
17	11380		11380	930755		930755
18	46390		46390	977145		977145
19	48140		48140	1025285		1025285
20	44620		44620	1069905		1069905
21	45690		45690	1115595		1115595
22	43560		43560	1159155		1159155
23	43660		43660	1202815		1202815
24	36210		36210	1239025		1239025
25	30260		30260	1269285		1269285
26	41160		41160	1310445		1310445
27	34260		34260	1344705		1344705
28	9620		9620	1354325		1354325
29	36880		36880	1391205		1391205
30	38250		38250	1429455		1429455

SA 867667

#11 September 1979

Date	Today Mf	Today Carbon Tissue	Today Total	To Date Mf	To Date Carbon Tissue	To Date Total
8 27	38910		38910	38910		38910
28	16560		16560	55470		55470
29	32555		32555	88025		88025
30	40620		40620	128645		128645
31	39720		39720	168365		168365
9 1	35585		35585	203950		203950
2	39850		39850	243800		243800
3	34005		34005	277805		277805
4	40340		40340	318145		318145
5	38940		38940	357085		357085
6	40115		40115	397200		397200
7	29745		29745	426945		426945
8	41520		41520	468465		468465
9	38795		38795	507260		507260
10	13035		13035	520295		520295
11	34360		34360	554655		554655
12	39440		39440	594095		594095
13	41675		41675	635770		635770
14	43430		43430	679200		679200
15	44195		44195	723395		723395
16	40060		40060	763455		763455
17	36425		36425	799880		799880
18	34410		34410	834290		834290
19	31015		31015	865305		865305
20	21130		21130	886435		886435
21	37225		37225	923660		923660
22	40940		40940	964600		964600
23	41845		41845	1006445		1006445
24	43515		43515	1049960		1049960
25	39695		39695	1089655		1089655
26	39040		39040	1128695		1128695
27	41950		41950	1170645		1170645
28	31330		31330	1201975		1201975
29	32895		32895	1234870		1234870
30	41410		41410	1276280		1276280

SA 067668

Totals #10 - #11 Machines

September 1979

Date	Today mf	Today Carbon Tissue	Today Total	To Date mf	To Date Carbon Tissue	To Date Total
8 27	75380		75380	75380		75380
28	60870		60870	136250		136250
29	79415		79415	215665		215665
30	80510		80510	296175		296175
31	84440		84440	380615		380615
9 1	79225		79225	459840		459840
2	85060		85060	544900		544900
3	83635		83635	628535		628535
4	78940		78940	707475		707475
5	80850		80850	788325		788325
6	86675		86675	875000		875000
7	61885		61885	936885		936885
8	87240		87240	1024125		1024125
9	94905		94905	1119030		1119030
10	44775		44775	1163805		1163805
11	86890		86890	1250695		1250695
12	76230		76230	1326925		1326925
13	87950		87950	1414875		1414875
14	92000		92000	1506875		1506875
15	89245		89245	1596120		1596120
16	86710		86710	1682830		1682830
17	47805		47805	1730635		1730635
18	80800		80800	1811435		1811435
19	79155		79155	1890590		1890590
20	65750		65750	1956340		1956340
21	82915		82915	2039255		2039255
22	84500		84500	2123755		2123755
23	85505		85505	2209260		2209260
24	79725		79725	2288985		2288985
25	69955		69955	2358940		2358940
26	80200		80200	2439140		2439140
27	76210		76210	2515350		2515350
28	40950		40950	2556300		2556300
29	69775		69775	2626075		2626075
30	79660		79660	2705735		2705735

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SA 067669

SA 067670

September 10, 1968

Mr. V. T. Early
815 American National Bank Building
Kalamazoo, Michigan

Dear Mr. Early:

The only survey the Michigan Water Resources Commission conducted at our Monarch and Bryant Divisions between the 1955 and 1966 surveys (the results of which we showed you the other day) is a survey taken June 27 and 28, 1961.

The enclosed table shows the data from this 1961 survey, in addition to the 1955 and 1967 surveys which we showed previously. The 1961 survey reductions in B.O.D. and solids reflect the shutting down of the Monarch deinking mill. The 1967 survey reflects the major changes we made in the Bryant deinking mill and the conservation of the white water in our Bryant Paper Mill Division. As noted in the enclosed table, the percent reduction columns are both figured on the reduction from the 1955 totals. I believe that these show the progress that you wish to portray.

The suspended volatile solids are a part of the suspended solids and indicate the portion of the suspended solids that are combustible. We have not as yet determined the exact start-up dates for the Bryant clarifier in 1954 or the Monarch clarifier in 1953. As soon as I learn these, we will forward this information to you.

Yours very truly,

U.G. Stoeffler
Mgr. of Process Development

UGS/kae

Enclosures

cc: Jack Gilman

008703

MONARCH AND BRYANT DIVISION EFFLUENT RESULTS
AS PER WATER RESOURCE COMMISSION SURVEYS MADE IN 1955, 1961, and 1967

	BRYANT	MONARCH	TOTAL	*PERCENT REDUCTION
1955 Surveys				
Flow M. G. D.	6.771	5.633	12.404	
5 Day B.O.D. #/day	16,838	13,671	30,509	
Suspended Solids #/day	53,475	25,011	78,486	
Suspended Volatile Solids #/day	15,989	9,011	25,000	
1961 Surveys				
Flow M. G. D.	4.233	1.506	5.739	53.7
5 Day B.O.D. #/day	16,580	780	17,360	43.1
Suspended Solids #/day	53,280	214	53,494	31.8
Suspended Volatile Solids #/day	16,140	125	16,265	34.9
1967 Surveys				
Flow M. G. D.	4.110	1.994	6.104	50.8
5 Day B.O.D. #/day	9.030	385	9,415	69.1
Suspended Solids #/day	7,130	372	7,502	90.4
Suspended Volatile Solids #/day	2,367	209	2,576	89.7

1955 Survey - Monarch - July 28-August 3, 1955
Bryant - July 20-26, 1955
1961 Survey - Monarch and Bryant - June 27 and 28, 1961
1967 Survey - Monarch and Bryant - June 13-15, 1967

*Percent Reduction from 1955 survey results.

Sent data 8-22-75

Kalamazoo, Michigan, Reside 5-7131

ALLIED PAPER CORPORATION

March 1, 1967

BRYANT MILL

CLARIFIER SUMMARY

BRYANT DIVISION

The Bryant Division's water pollution control system consists of a 100 foot Dorr Oliver Clarifier with an initial capacity of 790,000 gallons. The average daily flow through this is 4,000,000 gallons. All process waters that are not re-used at Bryant Mill C are pumped to a sump at Mill D. Together with the process water that is not re-used at Mill D, the sump pumps the waste water about 1,000 feet to a larger sump at Mill A. The waste process waters from Mill A joins the other waters at this sump. This sump has three large pumps which alternate with the influent flow and pump the waste water about 5,000 feet through a 20-inch line to the clarifier. The waste water (influent) enters the center ring of the tank where a "settling out" process takes place.

As the solids (clay, fiber, etc.) settle out, the rotating scraper arms move the solids to a pit in the bottom center of the tank. Here a moyno pump removes the solids to one of several drying beds adjoining the clarifier area. These beds cover an area of about 25 acres. The clear water (effluent) overflows into the laundering ring and then through a weir to a pipe running about 1,000 feet to the Bryant Pond (Portage Creek). The weir also has a recorder attached to measure all flow to the pond.

0002708

SA 011073

SA00011073

Mill: Bryant Division Location: Kalamazoo, MI

V. WATER USAGE AND EFFLUENT TREATMENT PRACTICES

Instructions for Completing Section V

Section V requests information on the mill's wastewater treatment practices. In Section VIII a general schematic of the effluent treatment system is requested. You have the option of providing any of the data requested in Section V on the schematic. If you do this, please indicate on the question(s) involved that the data is presented on the schematic.

A. Water Usage

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

B. Background Data

211. Indicate the method(s) of disposal of the mill wastewater.

* (a) Direct

* (b) Indirect

(c) Self-contained

(d) Other (please describe) _____

212. Please give the year in which the following portions of the mill's existing wastewater treatment system were started up.

	Year of Startup
a. Primary Treatment System	1954
b. Secondary Treatment System	

*C. Indirect Discharger (discharge to a POTW) please provide the following information:

215. Is raw wastewater pretreated externally prior to discharge to the POTW? (Pretreatment is considered to be any treatment device external from the mill production processes which is utilized prior to a primary and secondary treatment system, or prior to discharge by an indirect discharger to a POTW.)

(a) Yes

(b) No

*See note ahead of Page 11

SA 033993

ALLIED'S PROCESS WATER SYSTEM

Presented to Allied Supervisory Meeting - August 16, 1983

INTRODUCTION:

The paper industry by the very nature of its process of manufacture uses a lot of water. When you use great quantities of water you also discharge large amounts of water. In the earlier days the paper industry, and other industries also, did not show enough concern in the treatment of its discharges. However, for more than 30 years Allied Paper has been concerned with its waste flows having installed its first clarifier at Monarch in 1951. During the ensuing years the Research and Development Department has been responsible for the operation of waste treatment facilities and has carried out all the research and development on waste treatment projects. For over 20 years I have been heavily involved with Allied's waste water treatment systems. Over the last few years we have also become involved with our landfill operation and licensing. In 1979 we presented to this group a survey of our waste treatment operations at the that time. Today I will quickly review that data and bring you up to date on the total picture of our process water system. A system that takes water from Portage Creek, through the Manufacturing process, through the treatment process and back to Portage Creek. We have always enjoyed top management support in projects to improve our waste water facilities and we thank Ernie Klimczak and Tom Flanagan for their leadership. We especially appreciate the help from Dave Kirk, Dick Eaton, Martin Smith and Andy Watson. The men who really do the hands on work are John Roth, full time operator and tester in the system and John Stiegmeyer, who is back-up operator and subs for John Roth on some weekends and Holidays. Either of these men are on duty 365 days of the year. A State of Michigan law requires that every industrial waste water treatment facility have at least one certified operator. Allied has five such operators in the B-2A classification (chemical coagulation and clarification) Roth, Stiegmeyer, Smith, Hagard and myself. Certification is given upon passing

a written examination and has to be reneued every five years.

DEFINITIONS

Before we get into a description of our waste treatment facilities, it is advisable to define some terms that are commonly associated with this field and are necessary to understand the functions we will describe.

PL 92-500

PL 92-500-Federal Water Pollution Control Act Amendments of 1972 (October) are the most complicated piece of legislation ever passed. There are diverse sections of this law covering many areas of pollution control. This law has been amended as per recommendations from the Water Quality Commission chaired by former Vice President Rockefeller.

N.P.D.E.S. PERMIT

National Pollutant Discharge Elimination System. Anyone discharging into a navigable stream or its tributary is required to have a N.P.D.E.S. permit for each discharge. The U. S. Environmental Protection Agency has granted Michigan's Department of Natural Resources (DNR) the authority to issue these N.P.D.E.S. permits in Michigan.

B.O.D.

Biochemical Oxygen Demand. A measure of the amount of oxygen consumed in Biological Processes that break down organic matter in water. A measure of the organic pollutant load.

D.O.

Dissolved oxygen freely available in water and necessary for aquatic life and the oxidation of organic materials.

P.P.M.

Parts per million or milligrams per liter - Units used to express the strength of B.O.D., D.O. or other pollutants. To understand how minute is a ppm, a Layman's description is a jigger of Vermouth in a railroad tank car of gin. Strengths of heavy metals are usually expressed as P.P.B. - parts per billion (1.5 inches as compared with the circumference of the earth). Part per trillion - 1 second/320 centuries or 1¢/$10,000,000,000 (for government people).

INFLUENT-EFFLUENT

Substance or flow into and from a treatment plant.

T.O.C.

Total organic carbon a parameter that also expresses organic pollutant load.

SLUDGE

The solids removed from waste water by sedimentation - clarifier underflow, usually at 5 - 8% solids.

SUSPENDED SOLIDS

The small particles of solid pollutants (in our case cellulosic materials and pigments) in waste water that resist sedimentation by conventional means.

TURBIDITY

Expressed as J.T.U. (Jackson Turbidity Units) is materials suspended in water to disturb the penetration of light, opposite of clarity.

DROUGHT FLOW

Hydrologists estimate of the low flow that may occur for seven days every 10 years. All D.O. water quantity standards are based on the drought flow.

C.F.S.

Cubic feet per second measurement of flow in a stream. Portage Creek has a calculated drought flow of 29.3 C.F.S.

TOXIC POLLUTANT

A pollutant or combination of pollutants which either directly or indirectly cause death, disease, cancer, genetic mutations, physiological malfunctions and physical deformities.

M.G.D.

Million Gallons per day.

HISTORY

In the late forties, the paper industry banded together to form the National Council for Stream Improvement for the Pulp and Paper Industry. (Later expanded to Air & Stream Improvement). The only research organization dealing with pollution, totally supported by an industry. A NCASI regional office and laboratory is maintained at W.M.U. Early pilot work by the NCASI at Plainwell Paper Company provided the design citeria and performance data for primary clarification of paper mill waste.

You must remember that during this early time Allied comprised the Monarch and King Mills and each had large deinking operations, which contributed greatly to both the BOD and suspended solids content of the clarifier effluent.

In 1951, Allied Paper (as were all the paper mills in the Kalamazoo Valley) was placed under Orders of Determination by the Michigan Department of Natural Resources for suspended solids limitation in its effluent. To meet these limitations, Allied built and put into service Dorr Clarifiers for primary treatment at

Monarch in 1951, capacity 650,000 gals,at King Mill in 1953, capacity 850,000 gals. (St. Regis which owned Bryant Mill at that time, installed the Bryant Clarifier in 1952).

I must point out that Allied and the other mills in the valley operated their clarifiers before the then "debt free" City of Kalamazoo built primary treatment facilities for municipal wastes.

In 1961 the DNR established B.O.D. limitations for Allied Paper Mills of 48,000/day. Subsequent BOD effluent limitations for Allied Paper - Kalamazoo operation - ranged from 14,490 #/day June 1, 1966 to 1205 #/day in December, 1974. The present effluent limitations as specified in our N.P.F.R.S. permit, are 385#BOD/Day maximum, from May 15th to October 15th and for the period October 15th to May 15th the B.O.D. and suspended solids limitations are slightly higher because of lower temperatures in the creek. These limitations are based on the stream assimilation capacity of Portage Creek at the 10 year - 7 day low drought flow of 29.3 c.f.s. to insure water quality of 4.0 ppm of D.O.

To emphasize the magnitude of the job Allied Paper has done in pollution abatement over the years let me throw some more numbers at you. Suspended solids in #/day have been reduced from 156,500 # in 1961 to 40,000# in 1965, to 3,900 # in 1968 to 164# for the last 7 months for an average overall reduction of 99.9%. B.O.D in #/day has been reduced from 48,700# in 1961 to 27,000# in 1965 to 10,250 in 1968 to 440# in the last 7 months for an overall reduction of 99.1%. Waste water flow in M.G.D. has been reduced from 13.2 in 1961 to 9.93 in 1965 to 8.19 in 1968 to 2.883 for the first seven months of 1983. These reductions were accomplished by various means.Of major significance was the shutting down our three deinking operation A primary reason for eliminating these operations was the cost of additional waste treatment facilities. The high B.O.D strength effluent from Mill A (Bryant's deinking Mill) was clarified in the Bryant Clarifier and discharged to a 36" city

sewer line. At that time the charge was $317 per million gallons - today's cost is $719 per million gallons. Internal mill changes were also made to conserve and recycle fresh water and white water. In those days all fresh water from Portage Creek was filtered through eight Hungerford and Terry gravity down sand filters. The backwash water from the filters was pumped into the waste water stream.

PRESENT SYSTEM

Before we show some slides of the present process water and waste water systems, we will briefly tell you how the waste water system evolved. After we were appraised in 1975 by the Michigan Department of Natural Resources (M.D.N.R.) of the stringent B.O.D. and suspended solids limitations to take effect July 1, 1977, we conducted several treatment research projects. The results of these studies clearly indicated the need of a new method to determine the B.O.D. strength of our clarifier effluent flow going to Portage Creek. The B.O.D. procedure takes 5 days of incubation and therefore, was unacceptable as a method of controlling our discharge within the projected constraints of B.O.D. limitations.

Fortunately, about this time we heard about new in-line total organic carbon analyses or Monitors. Further investigation indicated that one manufacturer - Dohrmann - of such TOC Analysers had the capability of interfacing their instrument to a minicomputer. Research at this time also showed that our waste water effluent had a nearly one to one ratio of B.O.D. to T.O.C. So now we had a system that could provide rapid monitoring of the effluent stream strength and the computer control to meet our discharge limitation of 385# B.O.D./day, maximum. This system was subsequently approved by the M.D.N.R. with the condition that we continue to make daily BOD determinations on composited samples. The system was completed and on stream by the July 1, 1977 deadline at a total cost of $230,000.

SLIDES (Photography credits to Martin Smith)

1. Portage Creek flows into an impoundment called Monarch Mill Pond.

2. Cork Street pump house and process water inlet. The tank truck is used to pump lime slurry on sludge drying lagoons for pH and odor control.

3. Vegetation covering the former Bryant Mill Pond (another P.C. impoundment). In the background is the grey tank, a waste water surge tank.

4. Alcott Street dam - because of its construction it also serves as a flood control device during high creek flow due to heavy rains.

5. Portage Creek looking North from Bryant Street, showing the Garage or Mill D pump house.

6. Portage Creek looking South from Reed Street. The small brick building on the right is a U.S.G.S. Gaging Station. Here the temperature and flow of Portage Creek is measured at regular intervals, recorded on tape and a digital signal is available for future use. Maintained by U. S. G. S out of Okemos and costs are split between Allied and U.S.G.S. (Gaging Station 1065).

7. Grey tank

8. Bryant Clarifier - all waste water is pumped to the clarifier. Effluent flow on North side goes to City and on South side to Monarch clarifier.

9. Monarch Clarifier - waste water effluent from Bryant through 16" polyethylene pipe for 1100 feet and 22 ft. drop.

10. Stainless steel stilling well in Monarch Clarifier pump house decreases flow velocity before Parshall flume.

11. Parshall flume - a flow measuring device - head end.

12. Parshall flume - discharge end - into Monarch clarifier wet well before pumping into clarifier center ring.

13. Monarch clarifier discharge weir to Portage Creek. - measuring device a capacitance probe.

14. Computerized Control System Schematic - signals come in and out of control building.

15. Monarch Clarifier Pumphouse and corner of computer control building.

16. Inside building - samples compositing daily samples.

17. Turbidity Meter (Hach Surface Scatter Model 3) and a L & N pH meter - send continuous signals to computer for storage and averaging.

18. Work bench area - all testing done here, incubator lower left and refrigerator lower right.

19. Computer - I.O. & C.P.U. cabinets - Computer Digital PDP 1104

20. Digital peripherals - C.R.T. and Decwriter

21. Again - programmed to put out hourly, daily, weekly, monthly reports.

22. Dohrmann D 60 T.O.C. Analyser, briefly the operation is to burn 5cc sample at 1900° F with excess O_2, detect resulting CO_2 combustion product and convert to a T.O.C. reading. It is supplied with Compressed Air, O_2 Acid, water, sample and 110 A.C.

23. T.O.C. Analyzer chart showing T.O.C. readings for 2 samples. The T.O.C of the effluent stream is determined on 4 consecutive samples - The computer reads the 4 results, throws the first one away and averages the other three and uses this value for the next 30 minutes of control.

24. T.O.C. Analyzer Combustion Chamber.

25. T.O.C. Analyzer sample injection mechanism to the combustion chamber: The key part of this T.O.C. computer system is the control valve, that is modulated to allow the right amount of influent to the Monarch clarifier to satisfy the discharge limitation of B.O.D. - The suspended solids limitation is never a problem if the B.O.D. limitation is satisfied. The bottom line is that the system works and we have been in compliance since the July 1, 1977 date.

SLUDGE DISPOSAL AND SOLID WASTE

The clarifiers' underflows - called sludge by some - composed chiefly of fiber and filler . (Ash content of about 60%), consistency of 5 - 9 % is pumped by Moyno pumps to drying lagoons (about 22 acres). These lagoons are regularly treated with lime slurry from April to October for odor control. Decanting water from these lagoons is pumped as needed, to the Bryant Clarifier. When sufficiently dry, the sludge is dug out, trucked to other areas, and covered with soil. All this i done on Allied property.

Solid waste from the mills (wood, paper, drums etc.) is deposited on a 7.8 acre

licensed sanitary landfill and covered each day. This landfill now fulfills all the requirements for landfills as specified in Act 641, Solid Waste Management, finally becoming law December 21, 1981. This landfill is regularly inspected by the Kalamazoo County Health Department which is the delegated authority in this area. Some of the new requirements for landfills under this Act 641 was to do soil boring and testing to conduct a hydrogeological survey and to sample and test well samples quarterly for ground water quality. There are four monitoring wells. All this work has been done by a local engineering firm. A recent analysis on two different samples of our sludge indicates it qualifies as a covering material for our landfill. (Reports of hydro study and sludge). The present license runs through July, 1984.

COSTS

In 1979 we reported the annual operating and maintenance costs for the waste treatment system were $612,000. For 1983 we estimate these costs will exceed $850,000. The City of Kalamazoo sewer costs have more than doubled from $317/million gallons to $719 for 1983. The City costs for the first six months of 1983 were $221,000.

REGULATIONS

As a N.P.D.E.S. permit holder we must file a Monthly Operating Report by the 10th of each month listing all the daily test results as specified. The M.D.N.R. makes an annual non-scheduled survey of our discharge and the system. We maintain a very comprehensive Quality Assurance Program (Show Copy) as outlined in U.S.E.P.A. guidelines. At any time a special compliance unit of E.P.A. could visit us and inspect this Q. A. Program. We feel we have a very good program and John Roth is to be commended for setting it up and maintaining it.

There are several other regulatory laws governing different facets of operation - such as T.O.S.C.A., R.C.R.A, Act 64 etc. but are not applicable to this report. We regularly fill out survey forms sent by various State and Federal agencies compliance is mandated by statute.

As per U.S.E.P.A. and Michigan DNR requirement, Allied has under Al Vickery's direction and plan, prepared Pollution Incidence Prevention Plans (PIPP). These are filed with both EPA and DNR and have to be at hand for inspection by EPA people when they pay us those surprise visits.

The recent Michigan D.N.R. reorganization has concentrated all the Environmental Protection Bureau people for this district in the Plainwell office including Hazardous Waste, Community Assistance, Air Quality, Ground-Water Quality and Surface Water Quality. How long this re-alignment structure functions will depend on the wishes of the newly appointed D.N.R. Director. There have been some rumbling about putting all waste treatment facilities under the jurisdiction of the State Department of Public Health or a new agency.

PROCESS WATER

Historically the Bryant Division has used Portage Creek as the principal source of process water. The water from the creek enters the system at the Cork Street pump house and is pumped through a 24" pipe for some 3500 feet to the filter plant. In the last few years the old Hungerford and Terry gravity down flow sand filters have become inadequate to provide the quality of water required to produce quality light weight papers. This was especially evident when a program of recycling some our clarified effluent to the process water pump house was started in November, 1981.

Before we proceed further with the process water system let's look at some sketches of the total process water systems that Andy Watson has prepared for this presentation.

This sketch shows the scaled layout of the various units of the two systems in relation to the Manufacturing mills, cross streets and Portage Creek.

This next sketch shows the same units of each system with the flow lines of the various waters.

For the waste water system we have flows from Mill C and D to the Mill D or Garage pump house and a pair of pipes from here to the Grey tank. There are also pressure lines from Mill C & D directly to the Grey Tank. Waste water is pumped some 5000 feet through a 20" pipeline to the Bryant Clarifier. There some effluent flows to the City sewer trunk line, some flows to Monarch Clarifier, sludge is pumped to lagoons and decanting water is pumped to the Clarifier. At the Monarch Clarifier some effluent flows to Portage Creek, some is pumped to process water pump house and sludge to lagoons.

The process water system shows the Cork street pump house, line to filter plant, then to the power house or the silver tank and from this storage tank to Mills C & D.

If we overlay this other transparency we see the year to date average daily flows at the various points.

This next chart shows the daily average flows of process water and waste water flows going to the various points in the systems for the months of January through July, 1983. The process water usage is near the 10,000 gallon per ton of paper produced level.

Recently three Parkson Dynasand filters have been installed and put on line in the filter plant. These are upflowing sand filters, that continuously backwash the sand. The water enters at the bottom of the filter and flows upward through some 40" of sand overflowing to the clearwell. The washed sand falls to the top of the bed and the backwash water flows to the sewer. The sand is continuously moving downward and the water upward. It is calculated that this backwash system will reduce the volume of backwash water some 300,000 gallons per day from that of the old sand filter backwash volume.

Previously, when using the old sand filters only a chlorine water injection before the filters was used to oxidize the iron, silt and bacteria in the incoming water. It was soon evident that using the Dynasand method of filtering this single chemical treatment was not sufficient to produce a satisfactory quality water for the manufacturing process even with only a small amount of recycled water.

With the addition of other chemicals and/or modifications of injections points in the system we have produced a water of acceptable quality with an influent of 100% Portage Creek water. At the present time we are able to produce the same water quality with a 10% substitution of recycled clarifier effluent. We anticipate that within a reasonable time we will be able to produce a quality process water using a higher percentage of recycled water in a totally automated system, with permanent chemical additions systems. The responsibility for achieving this objective presently lies with a committee of staff people.

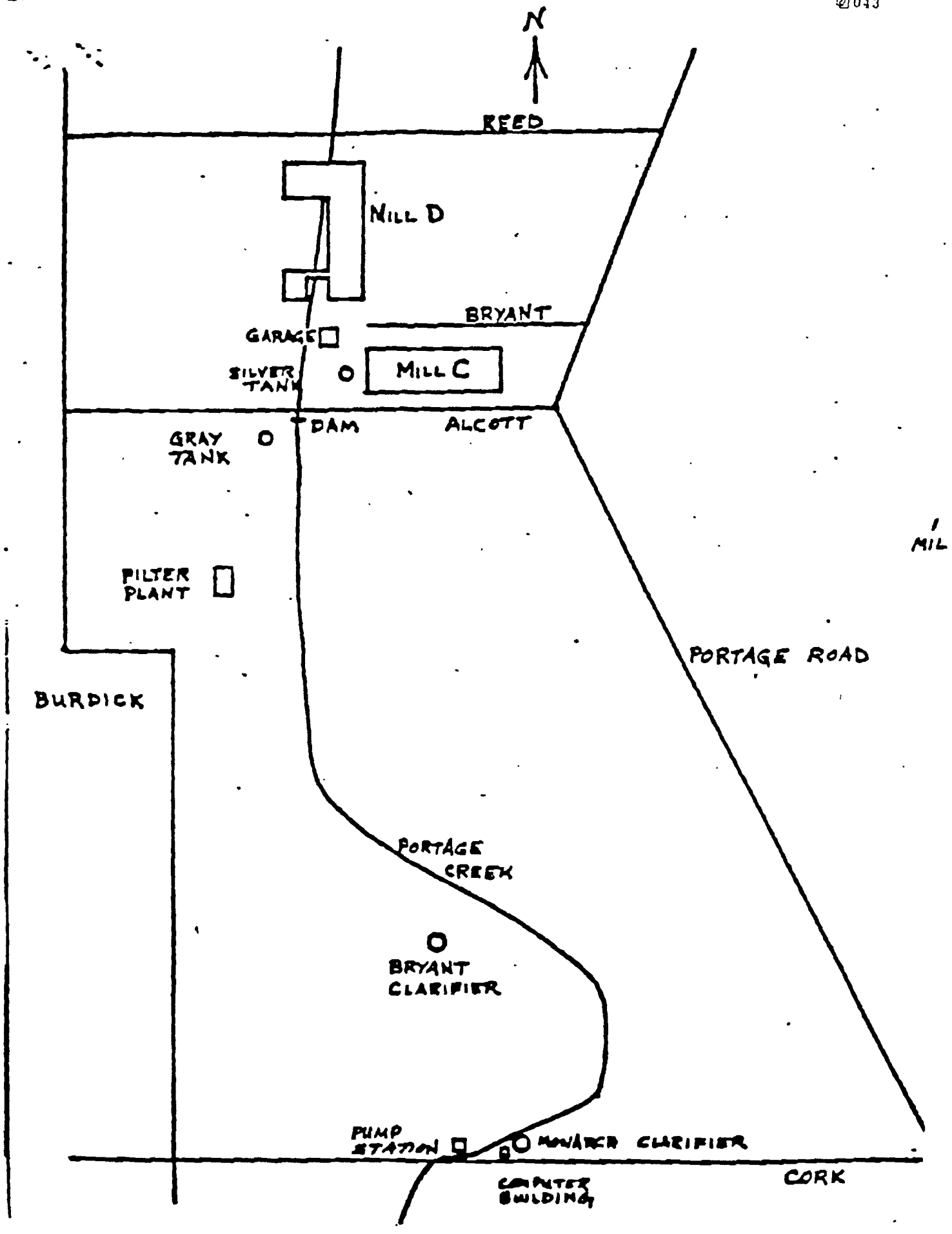
In addition to this immediate objective our longer range objectives are to decrease they use of City water in the manufacturing process by maintaining a high quality process water, increase the use of recycled water to the system, and reduce the strength and volume of waste water from the mills. These objectives will require the combined efforts of Manufacturing, Engineering, Maintenance and

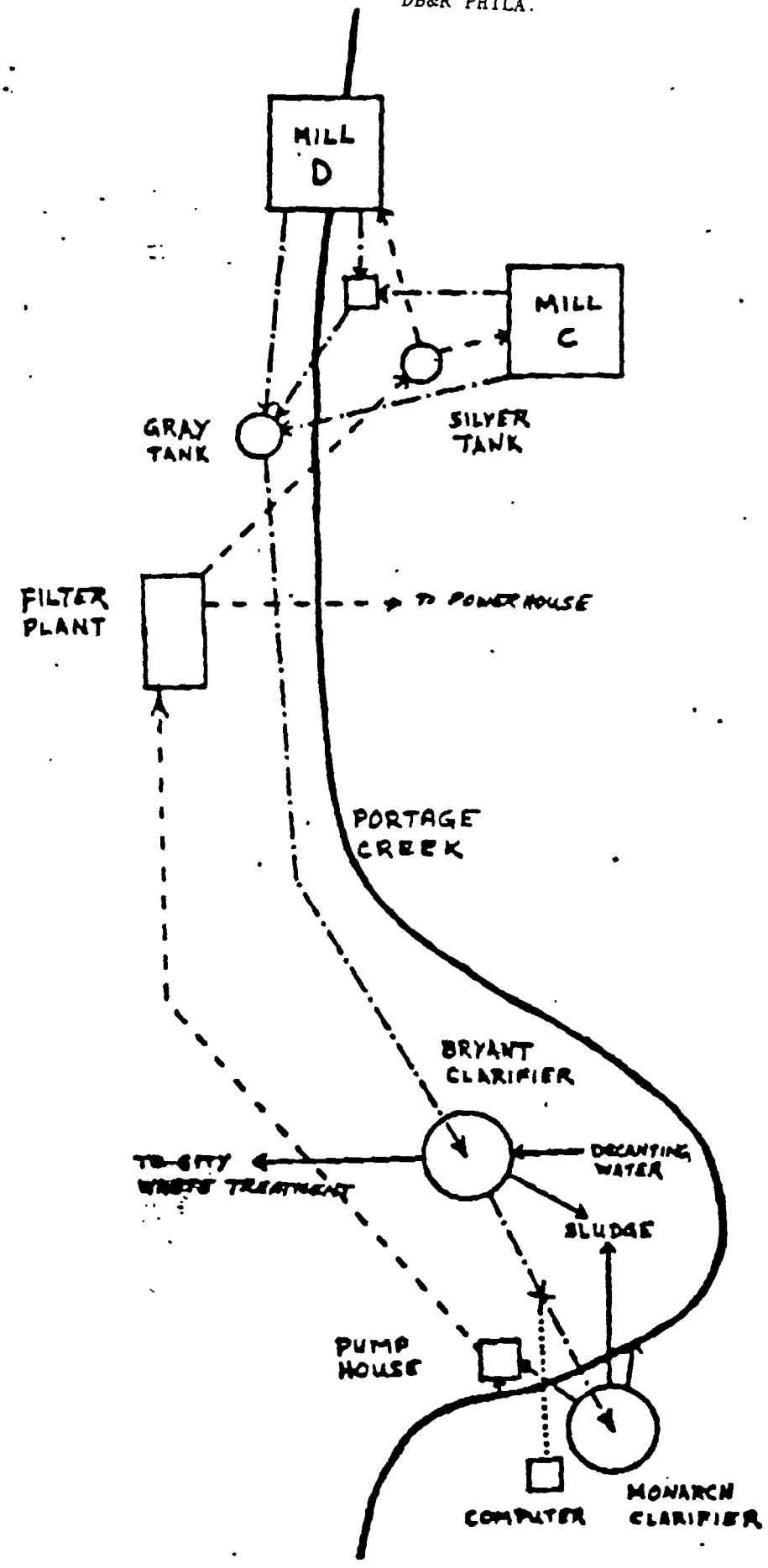
R & D personnel, in other words, everyone.

SLIDES FOR SUPERVISORS MEETING

August 16, 1983

1. Monarch Mill Pond
2. Cork Street Pump House
3. Bryant Mill Pond Bottom
4. Alcott Street Dam
5. Mill D Pump Sump
6. Portage Creek - Reed Street & Gaging Station
7. Grey Tank
8. Bryant Clarifier
9. Monarch Clarifier
10. Stilling Well - Monarch Clarifier
11. Parshall Flume (Head End)
12. Parshall Flume (Discharge)
13. Monarch Clarifier Weir, Sample pipe & Control Building
14. Computerized Control System Schematic
15. Monarch Clarifier Pump House, Control Building
16. Samples
17. Turbidity Meter, pH and Flowmeter
18. Work Bench Area
19. I. O. and C. P. U. Cabinets
20. C.R.T. and Decwriter
21. C.R.T. and Decwriter
22. T.O.C. Analyser
23. T.O.C. Chart
24. Furnace for Sample
25. Injector on Furnace


N
REED
MILL D
BRYANT
GARAGE
SILVER TANK
MILL C
DAM
ALCOTT
GRAY TANK
1 MIL
FILTER PLANT
PORTAGE ROAD
BURDICK
PORTAGE CREEK
BRYANT CLARIFIER
PUMP STATION
MONARCH CLARIFIER
COMPUTER BUILDING
CORK


MILL D
MILL C
GRAY TANK
SILVER TANK
FILTER PLANT
TO POWER HOUSE
PORTAGE CREEK
BRYANT CLARIFIER
TO CITY WATER TREATMENT
DECANTING WATER
SLUDGE
PUMP HOUSE
COMPUTER
MONARCH CLARIFIER

Mill: Bryant Location: Kalamazoo, MI

VIII. PROCESS SCHEMATICS

Attach separate general block diagrams for the three items listed below.

A. Water Treatment (if applicable) - Provide a general block diagram showing the water treatment system used, chemical application points, average flow, and disposal method for backwash water. If the mill has a raw water analysis available please attach a copy.

B. Manufacturing Process Schematic - Provide a general schematic of the total mill process to include water balance and all process wastewater streams. (See note at start of Section V.) Wastewater streams should be cross referenced to the effluent treatment system schematic.

C. Effluent Treatment System - Provide a general schematic of the effluent treatment system. Please key the diagram to the manufacturing process block diagram so that the point of influent to the treatment system for individual process sewers can be determined. Also show all chemical application points; chemicals used; flow monitoring and sampling points; average flow; size or area, volume, and number of each treatment system component; sludge recycle and volume; and sludge dewatering/thickening system.

Additional information on the mill's wastewater treatment system is also needed to complete the data request. Please provide answers to the following questions which pertain to your wastewater treatment system. For questions which do not apply, indicate by writing N/A (not applicable) on the space provided for the answer.

Primary Treatment

262. Give the following primary clarifier overflow rates:

a. Design 764 gpd/ft^2 at 6.000 MGD

b. Current 322 gpd/ft^2 at 2.532 MGD

SA 030392

SA00030392

93-482

POLLUTION CONTROL SPEECH

PRESENTED TO ALLIED SUPERVISORY MEETING - JULY 17, 1979

U. G. STOEFFLER

INTRODUCTION

THE PAPER INDUSTRY, THE 5TH LONGEST IN THE U.S., BY THE VERY NATURE OF ITS PROCESS OF PAPER MAKING USES A LOT OF WATER. WHEN YOU USE GREAT QUANTITIES OF WATER YOU ALSO DISCHARGE LARGE AMOUNTS OF WATER. IN EARLY TIMES THE PAPER INDUSTRY DID NOT SHOW ENOUGH CONCERN IN THE TREATMENT OF THESE DISCHARGES. ALLIED FOR MORE THAN 30 YEARS HAS BEEN CONCERNED WITH ITS WASTE FLOWS. DURING THESE YEARS THE TECHNICAL DEPARTMENT HAS BEEN RESPONSIBLE FOR THE OPERATION OF WASTE TREATMENT FACILITIES AND HAS CARRIED OUT ALL THE RESEARCH AND DEVELOPMENT ON WASTE TREATMENT PROJECTS. IN THESE YEARS WE HAVE HAD GOOD TECHNICAL PERSONNEL INVOLVED IN THE FIELD LIKE BILL KIRKPATRICK, JOHN DAM, WAYNE KENDRICK, BOB LEVY AND ROY WILLIE. SOME 20 YEARS AGO I INHERITED THE RESPONSIBILITY FOR ALLIED'S WASTE TREATMENT FACILITIES. WHEN MENTIONING ALLIED PERSONNEL AND WASTE TREATMENT, ONE NAME STANDS OUT ABOVE ALL THE REST, JACK GILMAN, A MAN OF GREAT INTEGRITY, VISION AND LEADERSHIP. HE ALWAYS CHARTED A WISE COURSE AND I THANK HIM FOR THE HELP AND DIRECTION HE GAVE ME OVER THE YEARS. TODAY, JOHN ROTH WORKS FULLTIME AT OUR WASTE TREATMENT FACILITIES, JOHN STIEGEMEYER IS THE BACKUP OPERATOR AND SUBSTITUTES FOR JOHN ROTH ON SOME WEEKENDS. MARTIN SMITH, SENIOR PROJECT LEADER, IS MY RIGHT HAND MAN IN ADMINISTERING THE PROGRAM, AND WE ALL GET MANAGEMENT DIRECTION FROM FRED HARRISON, TOM FLANAGAN AND DAVE KIRK. ERNIE KLIMCZAK HAS ALWAYS MAINTAINED AN INTEREST AND KNOWLEDGE IN THIS FIELD. A STATE OF MICHIGAN LAW REQUIRES THAT EACH INDUSTRIAL WASTE WATER FACILITY HAVE A CERTIFIED OPERATOR. ALLIED HAS FIVE IN THE B-2A CLASS: ROTH, STIEGEMEYER,

SA 033391

SMITH, PER HAGARD AND MYSELF. CERTIFICATION HAS TO BE RENEWED EVERY 5 YEARS.

DEFINITIONS

BEFORE WE GET INTO A DESCRIPTION OF OUR WASTE TREATMENT FACILITIES, IT IS ADVISABLE TO DEFINE SOME TERMS THAT ARE COMMONLY ASSOCIATED WITH THIS FIELD AND ARE NECESSARY TO UNDERSTAND THE FUNCTIONS WE WILL DESCRIBE.

PS 92-500-FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 (OCTOBER) ARE THE MOST COMPLICATED PIECE OF LEGISLATION EVER PASSED. THERE ARE DIVERSE SECTIONS OF THIS LAW COVERING MANY AREAS OF POLLUTION CONTROL. THIS LAW HAS BEEN AMENDED AS PER RECOMMENDATIONS FROM THE WATER QUALITY COMMISSION CHAIRED BY FORMER VICE PRESIDENT ROCKEFELLER.

N.P.D.E.S. PERMIT - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM. ANYONE DISCHARGING INTO A NAVIGABLE STREAM OR ITS TRIBUTARY IS REQUIRED TO HAVE A N.P.D.E.S. PERMIT FOR EACH DISCHARGE. THE U.S. ENVIRONMENTAL PROTECTION AGENCY HAS GRANTED MICHIGAN'S DEPARTMENT OF NATURAL RESOURCES (DNR) THE AUTHORITY TO ISSUE THESE NPDES PERMITS IN MICHIGAN.

B.O.D. - BIOCHEMICAL OXYGEN DEMAND. A MEASURE OF THE AMOUNT OF OXYGEN CONSUMED IN BIOLOGICAL PROCESSES THAT BREAK DOWN ORGANIC MATTER IN WATER, A MEASURE OF THE ORGANIC POLLUTANT LOAD.

D.O. - DISSOLVED OXYGEN FREELY AVAILABLE IN WATER AND NECESSARY FOR AQUATIC LIFE AND THE OXIDATION OF ORGANIC MATERIALS.

P.P.M. - PARTS PER MILLION OR MILLIGRAMS PER LITER - UNITS USED TO EXPRESS THE STRENGTH OF B.O.D., D.O. OR OTHER POLLUTANTS. TO UNDERSTAND HOW MINUTE IS A PPM, A LAYMAN'S DESCRIPTION IS A JIGGER OF VERMOUTH IN A RAILROAD TANK CAR OF GIN. STRENGTHS OF HEAVY METALS ARE USUALLY EXPRESSED AS P.P.B. - PARTS PER BILLION (1.5 INCHES AS COMPARED WITH THE CIRCUMFERENCE OF THE EARTH).

INFLUENT-EFFLUENT - SUBSTANCE OR FLOW INTO AND FROM A TREATMENT PLANT.

T.O.C. - TOTAL ORGANIC CARBON A PARAMETER THAT ALSO EXPRESSES ORGANIC POLLUTANT LOAD.

SLUDGE - THE SOLIDS REMOVED FROM WASTE WATER BY SEDIMENTATION.

SUSPENDED SOLIDS - THE SMALL PARTICLES OF SOLID POLLUTANTS (IN OUR CASE CELLULOSIC MATERIALS AND PIGMENTS) IN WASTE WATER THAT RESIST SEDIMENTATION BY CONVENTIONAL MEANS.

TURBIDITY - EXPRESSED AS J.T.U. (JACKSON TURBIDITY UNITS) IS MATERIALS SUSPENDED IN WATER TO DISTURB THE PENETRATION OF LIGHT.

DROUGHT FLOW - HYDROLOGISTS ESTIMATE OF THE LOW FLOW THAT MAY OCCUR FOR SEVEN DAYS EVERY 10 YEARS. ALL D.O. WATER QUANTITY STANDARDS ARE BASED ON THE DROUGHT FLOW.

C.F.S. - CUBIC FEET PER SECOND MEASUREMENT OF LOW IN A STREAM. PORTAGE CREEK HAS A DROUGHT FLOW OF 29.3 C.F.S.

Toxic Pollutant - A pollutant or combination of pollutants which either directly or indirectly cause death, disease, cancer, genetic mutations, physiological malfunctions and physical deformities.

M.G.D. - Million gallons per day.

HISTORY

In the late forties, the paper industry banded together to form the National Council for Stream Improvement for the Pulp and Paper Industry, (later expanded to Air & Stream Improvement). The only research organization dealing with pollution, totally supported by an industry. A NCASI regional office and laboratory is maintained at W.M.U. Early pilot work by the NCASI at Plainwell Paper Co. provided the design citeria and performance data for primary clarification of paper mill waste.

You must remember that during this time Allied comprised the Monarch and King Mills and each had large deinking operations, which contributed greatly to both the BOD and suspended solids content of the clarifier effluent.

In 1951, Allied Paper (as were all the paper mills in the Kalamazoo Valley) was placed under orders of determination by the Michigan Department of Natural Resources for suspended solids limitation in its effluent. To meet these limiations, Allied built and put into service Dorr Clarifiers for primary treatment at Monarch in 1951, at King Mill in 1953. (St. Regis which owned Bryant Mill at that time, installed the Bryant Clarifier in 1952.) Monarch is 90 ft. in diameter, 13 ft. straight side - (capacity 650,000 gals.); Bryant is 100 ft. in diameter - 13 ft. straight side -(capacity 850,000 gals.). Detention time ranges from 5.2 - 7.5 hrs., well within the DNR design

SPECIFICATIONS. I MUST POINT OUT THAT ALLIED AND THE OTHER MILLS IN THE VALLEY OPERATED THEIR CLARIFIERS BEFORE THE THEN "DEBT FREE" CITY OF KALAMAZOO BUILT PRIMARY TREATMENT FACILITIES FOR MUNICIPAL WASTES.

IN 1961 THE DNR ESTABLISHED B.O.D. LIMITATIONS FOR ALLIED PAPER MILLS OF 48,000/DAY. SUBSEQUENT BOD EFFLUENT LIMITATIONS FOR ALLIED PAPER - KALAMAZOO OPERATION - RANGED FROM 14,490 #/DAY SET JUNE 1, 1966 TO 1205 #/DAY (THIRTY DAY AVERAGE - 2,210 #/DAY MAXIMUM) IN DECEMBER 1974. THESE ARE ALLIED'S TOTAL EFFLUENT LIMITATIONS AS SPECIFIED IN OUR NPDES PERMIT ISSUED OCTOBER 20, 1974. THIS PERMIT, WHICH EXPIRES OCTOBER OF THIS YEAR, ALSO SPECIFIED THE PRESENT BOD LIMITATIONS OF 385 #/DAY MAXIMUM FROM MAY 15 TO OCTOBER 15 AND A CORRESPONDING 500 #/DAY MAXIMUM OF SUSPENDED SOLIDS. THESE LIMITATIONS ARE BASED ON THE STREAM ASSIMILATION CAPACITY OF PORTAGE CREEK. FOR THE 10 YEAR-7 DAY LOW DROUGHT FLOW OF 29.3 CFS TO INSURE WATER QUALITY SPECIFICATIONS OF 4.0 PPM D.O.

TO EMPHASIZE THE MAGNITUDE OF THE JOB ALLIED PAPER HAS DONE IN POLLUTION ABATEMENT OVER THE YEARS, LET ME THROW SOME MORE NUMBERS AT YOU. SUSPENDED SOLIDS IN #/DAY HAVE BEEN REDUCED FROM 156,500 IN 1961 TO 103,000 IN 1963, TO 40,000 IN 1965, TO 9,300 IN 1966, TO 3,900 IN 1968 TO 102 FOR THE LAST 6 MONTHS AVERAGE FOR AN OVERALL REDUCTION OF 99.9%. BOD IN #/DAY HAS BEEN REDUCED FROM 48,700 IN 1961, TO 35,800 IN 1963, TO 27,000 IN 1965 TO 13,900 IN 1966 TO 10,250 IN 1968 TO 360 LAST 6 MONTHS AVERAGE, FOR AN OVERALL REDUCTION OF 99.3%. FLOW-EFFLUENT DISCHARGE IN MGD HAS BEEN REDUCED FROM 13.2 IN 1961 TO 13.0 IN 1963 TO 9.93 IN 1965, TO 8.62 IN 1966 TO 8.19 IN 9168 TO 2.806 (LAST 6 MONTH'S AVERAGE) FOR AN OVERALL REDUCTION OF 78.7%. THESE REDUCTIONS HERE ACCOMPLISHED BY VARIOUS MEANS OF

OF MAJOR SIGNIFICANCE WAS THE SHUTTING DOWN OF OUR THREE DEINKING OPERATIONS. A PRIMARY REASON FOR ELIMINATING THESE OPERATIONS WAS THE COST OF WASTE TREATMENT OF THE EFFLUENT FROM THESE OPERATIONS. THE DECISION TO SEND PART OF OUR EFFLUENT TO THE CITY OF KALAMAZOO WASTE TREATMENT PLANT WAS MADE WHILE ALLIED OPERATED BRYANT'S MILL A DEINKING PLANT. THE HIGH STRENGTH BOD EFFLUENT FROM MILL A WAS CLARIFIED AND DISCHARGED TO A 36" CITY SEWER LINE. THE CHARGE FOR THIS DISCHARGE IS $317/MGD. INTERNAL MILL CHANGES WERE ALSO MADE TO CONSERVE AND RECYCLE FRESH WATER AND WHITE WATER, LIKE ALL THE PAPER MACHINES WERE EQUIPPED WITH EITHER FLOTATION OR DISC SAVEALLS. ALL FRESH WATER FOR THE MILL COMES FROM PORTAGE CREEK AND IS FILTERED IN GRAVITY DOWN FLOW SAND FILTERS. THE SUSPENDED SOLIDS REMOVED FROM THE CREEK WATER BY FILTRATIONS IS 5 TIMES MORE THAN THE SUSPENDED SOLIDS ALLIED DISCHARGES TO PORTAGE CREEK - THAT IS ON AVERAGE DAYS. THE IRONY IS THAT WE MUST TREAT THE BACKWASH WATER FROM THE FILTERS TO REMOVE THE SOLIDS IN OUR CLARIFIERS. THE PROCESS FRESH WATER IS TREATED WITH CHLORINE.

PRESENT SYSTEM

AS PREDICTED BY THE DNR OUR NPDES PERMIT CONTAINED THE VERY STRINGENT JULY 1, 1977 BOD LIMITATION OF 385#/DAY MAXIMUM. LET ME SHOW YOU WHY THIS IS SO STRINGENT. FIRST WITH WASTE FLOW OF 5.0-5.5 MGD, A 385# BOD/DAY MEANS A STRENGTH OF 8.5 PPM BOD. (SOME DRINKING WATER CAN RUN AS HIGH AS 5 PPM.) SECONDLY THE ACCURACY RANGE OF BOD ANALYSIS IS ±16% AND THE TEST PROCEDURE TAKES 5 DAYS OF INCUBATION. THIS COUPLED WITH THE FACT THAT MANUFACTURING CONDITIONS CAN CAUSE VARIATIONS OF ±200 # BOD PER DAY AND YOU CAN REALIZE WE HAD A FEW PROBLEMS. WE JUST HAD TO FIND THE MAJOR SOURCES OF OUR BOD AND DISCOVER A FAST METHOD OF BOD DETERMINATION. THE R&D DEPARTMENT

WENT THROUGH A MANY FACETED RESEARCH PROJECT TO FIND THE ANSWERS BY JULY 1, 1977.

PART OF THE REASONING BY THE DNR FOR THE POOR STREAM ASSIMILATION OF PORTAGE CREEK WAS THE BRYANT MILL POND IMPOUNDMENT BELOW THE MONARCH CLARIFIER DISCHARGE. THE POND BOTTOM HAD AN ACCUMULATION OF CELLULOSIC MATERIAL AND OTHER DEINKING DEBRIS FROM OUR FORMER DEINKING OPERATION AS INDICATED BY A VERY HIGH T.O.C. STRENGTH. OUR FIRST ACTION WAS THEN TO GO THROUGH THE LEGAL AND MECHANICAL PROCESSES OF LOWERING THE DAM THAT IMPOUNDED THE POND. THIS PROCESS WAS COUPLED WITH SEEDING AND VEGETATING THE NOW EXPOSED POND BOTTOM TO PREVENT EROSION. THIS PROJECT IS COMPLETE AND NEGOTIATIONS ARE PROCEEDING WITH THE DNR TO GAIN AN INCREASE IN OUR BOD LIMITATION.

WE NOW INVESTIGATED THE MAJOR SOURCES OF BOD CONTRIBUTIONS IN THE MANUFACTURING PROCESS. WE MADE A SURVEY OF ALL THE RAW MATERIALS USED IN THE MANUFACTURE OF PAPER TO ASCERTAIN THEIR INDIVIDUAL CONTRIBUTION TO THE BOD IN OUR WASTE WATER. ALL THE PULPS WERE TESTED AND THEIR CONTRIBUTION TO THE TOTAL BOD WAS MINIMAL. STARCH AND ROSIN SIZE RATED NUMBER 1 AND 2 IN THE RAW MATERIALS CONTRIBUTING TO SOLUBLE BOD. WITH THIS IN MIND, FOR A FIVE WEEK PERIOD BOTH MONARCH AND BRYANT WERE SWITCHED FROM A MODIFIED PEARL STARCH TO A CATIONIC SIZE PRESS STARCH IN ORDER TO KEEP THE STARCH IN THE REUSED BROKE ON THE FIBER AND OUT OF THE WATER PHASE. THE RESULTS SAW NO APPRECIABLE DECREASE IN THE FIVE (5) DAY BOD NOR ANY INCREASED MILEAGE FROM THIS STARCH. THEREFORE, OUR FINAL ASSESSMENT WAS THAT THE SOLUBLE BOD CAME MOSTLY FROM THE COOKED STARCH LOST TO THE WASTE STREAM VIA PUMP LEAKS, TANK SPILLAGES OR DUMPS, IN-LINE-SCREEN BACKWASHING BREAKS AT THE SIZE PRESS WITH RESULTING STARCH LOSSES AND OTHER SMALL LOSSES. AFTER, ALL 385# OF BOD

TRANSLATES INTO ONLY 982 GALLONS OF 6% STARCH SOLUTION PER DAY SPREAD OVER SEVEN (7) PAPER MACHINES AND TWO (2) COATERS.

OUR RESEARCH PROJECTS ALSO PURSUED ANOTHER IMPORTANT AVENUE - THAT OF WHITE WATER AND WASTE WATER UTILIZATION, INCLUDING RECYCLING CLARIFIER EFFLUENT. SINCE ALLIED ALREADY HAD TWO GRAVITY DOWNFLOW SAND FILTER PLANTS, IT WAS REASONABLE TO BUILD A MODEL SAND FILTER WITH INTRICATE AIR SCRUBBING AND BACK-WASHING UNDERFLOW SYSTEM AND A CLEAR PLASTIC FRONT PANEL SO WE COULD OBSERVE ALL THE ACTION. WE PUT THIS MODEL IN THE MONARCH CLARIFIER PUMP HOUSE CLOSE TO THE SUPPLY AND OPERATED IT FOR SEVERAL WEEKS WITHOUT ANY SUCCESS. WITH AN INFLUENT OF 20-50 JTU TURBIDITY WE COULD PRODUCE AN ACCEPTABLE EFFLUENT OF 10 JTU PROCESS WATER. (THE BOD CONTENT WOULD NOT BE OBJECTIONABLE FOR PROCESS WATER.) INFLUENTS OF HIGHER TURBIDITY 50-100 JTU, RESULTED IN UNACCEPTABLE EFFLUENT TURBIDITY LEVELS 20-40 JTU. THE CHIEF PROBLEM, HOWEVER, WAS THAT WE COULD NOT EFFICIENTLY BACKWASH THE COAGULATED FILTERED MATERIAL EVEN AT A 10 TO 1 BACKWASH RATE. THE PROJECT WAS CONDUCTED WITH AN INFLUENT OF 100% CLARIFIER EFFLUENT. WE FOUND, AT THAT TIME, THERE HAD NOT BEEN ANY STUDIES CONDUCTED ON THE FILTRATION OF PAPER MILL WASTE WATER TO SERVE AS BACKGROUND MATERIAL.

THE NEXT FILTRATION PROJECT WAS CARBON ABSORPTION. A LABORATORY FEASIBILITY STUDY BY THE CALGON CORP. INDICATED A FULL SCALE PILOT STUDY WAS IN ORDER. THE PILOT MODEL CONSISTING OF FOUR (4) COLUMNS, SIX (6) INCHES IN DIAMETER AND SIX (6) FT. HIGH, WERE FILLED WITH ACTIVATED CARBON AND INSTALLED IN THE MONARCH CLARIFIER PUMP HOUSE. THE PILOT PROJECT, EXTENDING OVER SEVERAL WEEKS, WAS UNSUCCESSFUL IN TWO RESPECTS. FIRST THE ACTIVATED CARBON DIDN'T

TAKE OUT THE ANTICIPATED HIGH PERCENTAGE (35-90) OF BOD CONSISTENTLY. SECOND, THE FILTRATE BLINDED THE FILTER MEDIA AT THE TOP OF THE COLUMN PRODUCING A FUSED CAKE THAT COULD NOT BE BROKEN UP BY AIR SCRUBBING AND BACKWASHING. THIS BLINDING PHENOMENON OCCURRED EACH TIME AFTER 8-12 HOURS OF OPERATION. THE PROBLEM COULD NOT BE CURED BY PRE-FILTRATION WITH ANTHRACITE, GRAVEL, COARSE SAND OR COMBINATIONS THEREOF. WE GUESSED THAT THE BLINDING COULD BE CAUSED BY POST FLOCCULATION OF THE POLYMER NORAMALLY USED IN OUR CLARIFIER.

PREVIOUS ISOLATIONS OF THE MONARCH MILL WASTE IN THE MONARCH CLARIFIER AND THE BRYANT WASTE IN THE BRYANT CLARIFIER FOR PERIODS OF ONE OR TWO WEEKS CONFIRMED THAT THE EFFLUENT FROM THE MONARCH CLARIFIER, WHEN RECEIVING ONLY THE MONARCH MILL INFLUENT WASTE, WOULD NOT EXCEED THE 385# BOD/DAY.

WITH THIS DATA IN HAND A SYSTEM OF CONTROL BEGAN TO EVOLVE WHICH INCLUDED A MINI-COMPUTER RATHER THAN MANUAL CONTROL. ABOUT THIS TIME WE HEARD ABOUT NEW ON-LINE TOC ANALYZERS OR MONITORS. OUR LABORATORY RESEARCH EVALUATION OF CHEMICAL OXYGEN DEMAND TEST (C.O.D.) INDICATED THIS METHOD WAS NOT SUITED TO OUR WASTE STREAM. PRELIMINARY SAMPLES OF OUR CLARIFIER EFFLUENT SENT TO AN INDEPENDENT LABORATORY INDICATED A NEARLY 1 TO 1 BOD/TOC RATIO. ANALYSES WERE BEING MADE TO PROVIDE RAPID AND ACCURATE READOUTS FOR PROMPT INITIATION OF CONTROL ACTIONS.

THE COMPUTER PEOPLE AT WMU WERE CONSULTED TO DETERMINE WHAT COMPUTER HARDWARE AND SOFTWARE WOULD BE REQUIRED TO AUTOMATE CONTROL OF THE EFFLUENT DISCHARGE AND COMPLY WITH NPDES LIMITATIONS. THEY STRONGLY RECOMMENDED WE CONTRACT

WITH A COMPUTER VENDOR TO FIX SINGLE RESPONSIBILITY FOR HARDWARE AND SOFTWARE. WE NOW CENTERED OUR ATTENTION ON THE SELECTION OF A COMPUTER VENDOR, TOC ANALYZER, FLOW METERS, TURBIDITY METER AND A pH METER THAT COULD BE INTERFACED WITH A MINI-COMPUTER.

THE WMU COMPUTER PEOPLE RECOMMENDED DIGITAL EQUIPMENT COMPANY'S HARDWARE BECAUSE OF THE 4-5 SERVICEMEN IN THE IMMEDIATE AREA AND FURTHER SUGGESTED DEC'S MINI-COMPUTER MODEL PDP 11-04 WITH 32K OF CORE, 16 INPUTS AND OUTPUTS AND THE PERIPHERAL EQUIPMENT: DEC WRITER LA36, CRT VT-52 AND DAUL DISC DRIVE RK 05. ALLIED'S CORPORATE PARENT, SCM, HAD QUALIFIED COMPUTER SYSTEMS PEOPLE WHO HELPED US AT THIS POINT TO PREPARE SPECIFICATIONS FOR THIS CONTROL SYSTEM WHICH WE SUBMITTED TO 8-10 VENDORS. THE SPECIFICATIONS INCLUDED SYSTEM DESCRIPTION, HARDWARE AND SOFTWARE REQUIREMENTS, OPERATING PROCEDURES, RESPONSIBILITIES, SCHEDULE, DOCUMENTATION AND TRAINING. THE VENDOR THAT WAS RECOMMENDED AND MET ALL THE SPECIFICATIONS AT THE RIGHT COMPETITIVE PRICE WAS COPELAND AND ROLAND INC., FROM COLUMBUS, OHIO.

THE SELECTION OF THE TOC ANALYZER WAS PARTICULARLY DIFFICULT BECAUSE WE WERE UNIQUE IN THE FACT THAT A CONTINUOUS SAMPLING ANALYZER HAD NOT, TO OUR KNOWLEDGE, BEEN USED ON A PAPER MILL WASTE STREAM. WE CONSIDERED THREE TOC ANALYZERS, TWO DISCREET TYPE (IONICS AND DOHRMANN) AND ONE CONTINUOUS TYPE (RAYTHEON). OUR TWO MONTH LABORATORY EVALUATION OF A RAYTHEON MODEL WAS VERY ENLIGHTENING. SINCE WE ENVISIONED MONITORING THE TOC ON FOUR DIFFERENT STREAMS, THE CONTINUOUS SAMPLING MODEL WAS NOT PRACTICAL. WE LABORATORY TESTED THE DORHMANN MODEL, DC80, IN THEIR MOBILE VAN AND WERE IMPRESSED BY IT'S COMPACTNESS, SAMPLE INJECTION SYSTEM; HORIBA IR DETECTOR, SAMPLE STREAM SELECTOR SEQUENCER, THE ELECTRONIC INTERFACING CAPABILITY, THE RUGGEDNESS OF THE EQUIPMENT AND SAMPLE TIME VARIABILITY.

THE FLOW SCHEMATIC SLIDE SHOWS ALLIED'S NOW COMPLETED WASTE TREATMENT CONTROL SYSTEM. ALL OF BRYANT MILL'S WASTE WATER (APPROXIMATELY 2.5 MGD) IS COLLECTED IN A LARGE 95,000 GAL. GREY TANK AND PUMPED THROUGH 3000 FT. OF 20" PIPE TO THE BRYANT CLARIFIER. THE EFFLUENT LAUNDER HAS TWO DISCHARGE WEIR BOXES 180° APART. THE EFFLUENT FLOW THAT CAN BE ACCEPTED BY THE AUTOMATIC CONTROL VALVE AT THE MONARCH CLARIFIER FLOWS TO THE INFLUENT WET WELL OF THE MONARCH CLARIFIER. THAT PORTION OF THE BRYANT CLARIFIER EFFLUENT THAT IS NOT ACCEPTED FLOWS INTO A 24" CONCRETE PIPE TO A CITY SEWER AND ON TO THE MUNICIPAL WASTE TREATMENT PLANT. THIS FLOW IS METERED BY A FOUR FT. WEIR AND BIF LEVEL RECORDER AND TOTALIZER. THIS WEIR LEVEL IS HIGHER THAN THE OPPOSITE WEIR PLATE SO THAT IF NECESSARY ALL THE BRYANT CLARIFIER EFFLUENT CAN FLOW TO THE MONARCH CLARIFIER WET WELL THROUGH A 16" POLYETHYLENE PIPE WHICH DROPS 22 FT. OVER 1100 FEET DISTANCE. A STAINLESS STEEL STILLING CHANNEL WAS NECESSARY TO DECREASE THE FLOW VELOCITY BEFORE ENTERING THE PARSHALL FLUME. THE 16" POLYETHYLENE PIPE IS REDUCED TO A 12" STAINLESS STEEL PIPE FOLLOWED BY A MANUAL KNIFE VALVE. THEN FOLLOWS THE AUTOMATIC CONTROL VALVE AND THE STILLING CHANNEL BOX BEFORE IT ENTERS THE MONARCH CLARIFIER PUMP HOUSE AND IS ADAPTED TO A 9" FIBER GLASS PARSHALL FLUME. THE PREVIOUS SLIDES SHOW THE CEMENT BLOCK ENCLOSURE FOR THE VALVES, THE POLYETHYLENE PIPE AND STAINLESS STEEL STILLING CHANNEL AND PUMP HOUSE AND PARSHALL FLUME.

THE PARSHALL FLUME IS EQUIPPED WITH A ROBERT SHAW TWO-WIRE CAPACITANCE PROBE AND ATTACHED TRANSMITTER. THE POLYETHYLENE SHEATHED COPPER SWORD-LIKE PROBE IS SPECIFICALLY SHAPED FOR PARSHALL FLUME FLOW MEASUREMENTS. ELECTRICAL SIGNALS FROM THE ROBERT SHAW TRANSMITTER AND AUTOMATIC CONTROL VALVE ENTER THE CONTROL BUILDING THROUGH UNDERGROUND CONDUIT. THE FLOW FROM THE PARSHALL FLUME DISCHARGES DIRECTLY INTO THE MONARCH CLARIFIER WET WELL.

IT MUST BE NOTED AT THIS POINT THAT TO BOTH MONARCH AND BRYANT WASTE STREAMS WE ADD ALUM FOR A FLOCCULANT AND A POLYMER FOR A COAGULANT BEFORE THE STREAMS LEAVE THE MILL BASEMENTS.

ALL THE WASTE WATER FROM THE MONARCH MILL FLOWS BY GRAVITY FROM A BASEMENT SEWER THROUGH A CULVERT UNDER CORK STREET INTO THE BOTTOM OF MONARCH CLARIFIER WET WELL WITH NO FLOW MEASURING DEVICE. A HIGH LEVEL DAM AND BY-PASS CULVERT TO PORTAGE CREEK PREVENTS THE OVERFLOWING OF THE WET WELL. SUCH OVERFLOW WOULD GROUND OUT THE PUMP MOTORS IN THE PUMP HOUSE AND COULD FLOOD THE MONARCH MILL BASEMENT CAUSING EXTENSIVE DAMAGE. A SIGNAL FROM A HIGH LEVEL PROBE AT THE DAM OVERRIDES ALL OTHER CONTROL ON THE AUTOMATIC VALVE AND PREVENTS THE BRYANT CLARIFIER EFFLUENT FLOW TO THE MONARCH CLARIFIER WET WELL FROM BY-PASSING THE DAM.

THE MONARCH CLARIFIER EFFLUENT FLOW IS MEASURED OVER A 4 FT. RECTANGULAR WEIR IN THE ENCLOSURE BY A ROBERT SHAW CAPACITANCE PROBE. THE POLYETHYLENE SHEATHED COPPER SWORD IS SHAPED SPECIFICALLY FOR A FOUR FT. RECTANGULAR WEIR AND THE SIGNAL IS SENT VIA A SHIELDED CABLE TO THE CONTROL BUILDING AND THE TRANSMITTER RECORDER AND TOTALIZER.

SAMPLES OF THE TOTAL MONARCH CLARIFIER INFLUENT AND THE BRYANT CLARIFIER EFFLUENT PORTION OF THE MONARCH INFLUENT ARE PUMPED VIA UNDERGROUND PIPES WITH GOULDS CENTRIFUGAL PUMPS LOCATED IN THE PUMP HOUSE AND THE MONARCH CLARIFIER EFFLUENT SAMPLE BY A SIMILAR PUMP IN THE CONTROL BUILDING. THE TWO FLOWS (MONARCH CLARIFIER EFFLUENT - BRYANT CLARIFIER EFFLUENT FOR MONARCH) ARE MEASURED AND THE THIRD, MONARCH MILL WASTE FLOW, IS CALCULATED BY DIFFERENCE.

THE COMPUTERIZED CONTROL SYSTEM SCHEMATIC SHOWS THAT SIGNALS FROM THE TWO PREVIOUSLY MENTIONED ROBERT SHAW FLOW METERS AND THE TOC ANALYZER ARE SENT TO THE COMPUTER WHERE CALCULATIONS ARE MADE ACCORDING TO THE PRESET ALGORITHMS AND SIGNALS ARE SENT TO THE AUTOMATIC CONTROL VALVE ALLOWING THE RIGHT AMOUNT OF THE BRYANT EFFLUENT FLOW INTO THE MONARCH CLARIFIER TO SATISFY THE BOD LIMITATION IN THE MONARCH CLARIFIER EFFLUENT TO PORTAGE CREEK. WHILE IT SOUNDS EASY IT HAS INVOLVED MANY HOURS OF CONSULTATION WITH THE COMPUTER VENDOR, BOTH IN KALAMAZOO AND COLUMBUS, OHIO. THE TOC ANALYZER ELECTRONIC EXPERT WORKED WITH THE COMPUTER PROGRAMMER AND WE BROUGHT THE TOC ANALYZER TO COLUMBUS WHERE THE ANALYZER AND COMPUTER SYSTEMS WERE INTERFACED AND OPERATED. SIGNALS FROM THE pH METER AND THE TURBIDITY METER ARE SENT TO THE COMPUTER FOR REPORT GENERATION. HOURLY, DAILY, WEEKLY AND MONTHLY REPORTS ON FLOWS, BOD, pH, TURBIDITY, SUSPENDED SOLIDS, SOLIDS SET AND GREASE AND OIL ARE GENERATED ON THE DECWRITER AND DISPLAYS ON THE CURRENT STATUS OF THE SYSTEM AT ANY ONE TIME ARE SHOWN ON THE CRT. THERE IS SUFFICIENT MEMORY TO STORE THE ABOVE MENTIONED REPORTS FOR A DETERMINED AMOUNT OF TIME.

A COMPUTER-CONTROL BUILDING, AS YOU CAN SEE ON THE LEFT OF THIS SLIDE, TO HOUSE ALL THIS EQUIPMENT WAS DESIGNED EARLY IN REGARD TO LOCATION, APPROXIMATE SIZE, AUXILIARY EQUIPMENT AND SERVICES. THE DNR APPROVAL FOR THIS WHOLE PLAN WAS RECEIVED IN MARCH 1976 AND THE CORPORATE CAPITAL EXPENDITURE REQUEST WAS APPROVED IN JUNE 1976 AND WE MADE OUR PLANS TO MEET THE JULY 1, 1977 NPDES PERMIT DATE.

THE CEMENT BLOCK CONTROL BUILDING SHOWN IN THE LOWER LEFT CORNER (25 FT. LONG X 12 FT. WIDE) IS LOCATED SLIGHTLY SOUTH AND WEST OF THE MONARCH CLARIFIER PUMP HOUSE, SO THAT THE NORTHWEST CORNER IS IN LINE WITH THE EFFLUENT

WEIR BOX OF THE CLARIFIER. THE BUILDING IS CLIMATE CONTROLLED TO MAINTAIN A YEAR AROUND TEMPERATURE OF 70-75°F AND DIVIDED INTO THREE SECTIONS. THE ENTRY AREA CONTAINS THE ELECTRIC SWITCH GEAR AND A SECOND SIMILAR AREA CONTAINS THE COMPRESSED OXYGEN AND AIR CYLINDERS AND STORAGE RACKS AND THE THIRD IS THE WORKING AND EQUIPMENT AREA. ON THE NORTH WALL OF THIS AREA ARE SAMPLERS, SHOWN HERE, AND SAMPLE BARRELS AND THE RACKS HOLDING THE TURBIDITY METER, pH METER AND ELECTRODE ASSEMBLY AND THE ROBERT SHAW FLOW RECORDERS. THE pH METER IS A LEEDS AND NORTHROP WITH A FLOW-THROUGH ELECTRODE ASSEMBLY WE HAD FABRICATED. THE TURBIDIMETER IS A HACH SURFACE SCATTER MODEL 3 THAT WAS IN SERVICE WITHOUT PROBLEMS FOR SEVERAL YEARS BEFORE IN THE PUMP HOUSE. THE SAMPLERS ARE ALLIED DESIGNED, LOCALLY FABRICATED, DISCHARGING A SAMPLE FLOW OUTFLOW OF 100 CC/MIN. THE WEST WALL IS THE WORKBENCH AREA CONTAINING AN INCUBATOR, SINK AND 2.5 CU. FT. BUILTIN REFRIGERATOR, TOGETHER WITH A WALL MOUNTED OVEN (BLUE M), AN AINSWORTH BALANCE AND A DELTA D.O. METER. THE CUPBOARDS CONTAIN THE CUSTOMARY CHEMICALS, GLASSWARE, FILTER PAPER AND A BOD DILUTION CARBOY. THE SOUTH WALL CONTAINS THE COMPUTER CABINETS (I.O. AND C.P.U.), THE CRT AND STAND AND THE HARD COPY WRITER. ALONG THE SHORT EAST WALL IS THE TOC ANALYZER PLUS THE SAMPLE STREAM SELECTOR SEQUENCER, SHOWING RECORDER AND I.R. DETECTOR.

ANOTHER REQUIREMENT OF OUR NPDES PERMIT WAS TO PROVIDE AN ALTERNATE POWER SOURCE. WE HAVE INSTALLED AUTOMATIC SWITCHING GEAR THAT WILL SWITCH FROM THE INDUSTRIAL CIRCUIT OF CONSUMERS TO THE COMMERCIAL CIRCUITS SHOULD THE FIRST SOURCE FAIL. THIS PROJECT WAS ALL UNDER AL VICKERY'S RESPONSIBILITY. YOU CAN SEE THIS SWITCHING GEAR ON THE NORTHEAST CORNER OF MILL E, NEAR THE DAM AT ALCOTT ST. AND THE NORTH SIDE OF MONARCH. THIS WHOLE WASTE TREATMENT SYSTEM COST WAS ABOUT $230,000.

THE NEW SYSTEM WAS IN OPERATION BY JULY 1, 1977. SEEING IT WAS UNIQUE AND ONE OF A KIND, THE STARTUP WAS NOT WITHOUT DIFFICULTIES. COPELAND AND ROLAND HAD NOT WORKED ON A PROCESS LIKE THIS BEFORE AND DORHMANN HAD NOT INTERFACED THEIR TOC ANALYZER WITH A COMPUTER EITHER, SO SOMETIMES THE LEARNING PROCESS WAS PAINFUL AND UNCHARTED. THE BOTTOM LINE IS THAT THE SYSTEM WORKS AND ALLIED HAS, EXCEPT FOR A FEW DAYS IN JULY, AUGUST AND SEPTEMBER 1977, BEEN IN COMPLIANCE WITH OUR NPDES PERMIT LIMITATIONS. WE WISH TO THANK DAVE RANDALL FOR HIS HELP WITH COMPUTER AND ELECTRICAL PROBLEMS.

ANOTHER FACET OF WASTE TREATMENT IS SLUDGE DISPOSAL AND SOLID WASTE DISPOSAL. THE SLUDGE OR UNDERFLOW FROM THE CLARIFIERS IS PUMPED AT 7-8% SOLIDS TO DRYING LAGOONS ON OUR PROPERTY. WHEN SUFFICIENTLY DRY, THE SLUDGE IS DUG OUT AND TRUCKED TO OTHER AREAS AND COVERED WITH SOIL FROM NEWLY PREPARED LAGOONS. ALL SOLID WASTE FROM THE MILLS IS DEPOSITED ON OUR PROPERTY AND COVERED UNDER OUR PERMIT FROM THE COUNTY HEALTH DEPARTMENT. AFTER MANY EXPERIMENTS, OUR BEST ODOR CONTROL TREATMENT IS TO SPRAY A LIME SLURRY ON OUR ACTIVE DRY LAGOONS 5 - 6 DAYS A WEEK OVER A SIX MONTH PERIOD. THIS LIME RAISES THE pH AND COMBATS THE ODORS ARISING FROM ANY ANEROBIC CONDITIONS IN THE LAGOONS.

ALL THIS OPERATION IS UNDER THE SUPERVISION OF GEORGE BROOKS USING 3-4 MEN AND A CRANE, BULLDOZER, DUMP TRUCKS AND TANK TRUCK.

COSTS

COSTS FOR POLLUTION CONTROL FOR THE PAST 12 MONTHS:

OPERATING AND MAINTENANCE			
CHEMICALS			
LIME	$16,073		
ALUM	31,025		
POLYMER	20,075		$ 67,173.00
MAINTENANCE		$ 58,000.00	
ELECTRICAL		121,874.53	
DEPRECIATION		30,000.00	
COMPUTER MAINTENANCE		3,420.00	
SALARIES AND WAGES		93,500.00	306,794.53
CITY OF KALAMAZOO - SEWER COSTS			227,487.12
OTHER RELATED COSTS			
NCASI FEE		$ 1,405	
U.S.G.S. GAUGING STATION		2,000	
DNR SURVEILLANCE FEE		7,162	10,567.00
		TOTAL	$612,021.63

OPERATING

WHEN ALL IS GOING WELL, WE DAILY FOLLOW CERTAIN SET PROCEDURES - COMPOSITE SAMPLES OF THE BRYANT CLARIFIER INFLUENT AND EFFLUENT AND MONARCH CLARIFIER INFLUENT AND EFFLUENT ARE TESTED FOR pH, BOD, SUSPENDED SOLIDS, SOLIDS SET, GREASE AND OIL AND T.O.C. FLOW CHARTS ARE CHANGED, T.O.C. ANALYZER IS CALIBRATED, pH METER AND TURBIDATION METER ARE CLEANED, SAMPLE LINES ARE FLUSHED, ETC. THERE ARE ALWAYS ROUTINE MAINTENANCE CHORES TO BE DONE AND

CHECKS OF ALL THE EQUIPMENT. ALL FRESH WATER METERS IN MILL C, D AND MONARCH ARE READ AND RECORDED. ALL TEST RESULTS ARE RECORDED. A REGULAR WEEKLY REPORT, THE "WASTE TANK TREATMENT TEST" AND FRESH WATER USAGE IS SENT TO A NUMBER OF YOU. THEN WE ARE REQUIRED TO FILE BY THE 10TH OF EACH MONTH TO THE DNR A MONTHLY OPERATING REPORT (MOR) INCLUDING THE FLOW, BOD, SUSPENDED SOLIDS, SOLIDS SET, pH AND GREASE AND OIL FOR OUR NPDES OUTFALL FOR EACH DAY. THE OPERATION OF OUR WASTE TREATMENT FACILITIES IS NON-PRODUCTIVE AND AT TIMES COULD BE CONSIDERED "OPERATIONS RAT HOLE", BUT IT IS VITAL TO THE CONTINUED OPERATION OF THE KALAMAZOO OPERATIONS. WE CANNOT OPERATE WITHOUT MEETING OUR NPDES PERMIT LIMITATIONS EVERY DAY OF THE YEAR. VIOLATIONS ARE SUBJECT TO EITHER CIVIL OR CRIMINAL ACTION. TOM AND KEN AND ALL OUR SUPERINTENDENTS ARE WELL AWARE OF THE IMPORTANCE ATTACHED TO MAINTAINING A WATCHFUL EYE ON WASTES AND CONSERVATION OF FRESH AND WHITE WATERS. THEY TAKE PROMPT ACTION TO MINIMIZE SPILLS AND LEAKS AND ADVISE US OF ANYTHING UNUSUAL. SOMETIMES WE HAVE SHUT DOWN ALL OR PART OF THE PAPER MACHINES WHEN PART OF THE WASTE TREATMENT FACILITIES ARE MALFUNCTIONING OR DOWN FOR REPAIRS.

POLLUTION CONTROL ALSO INVOLVES FILLING OUT OTHER FORMS EITHER FOR MICHIGAN DNR OR U.S.E.P.A. YEARLY WE FILE A SURVEILLANCE FORM FOR DND WHERE WE MUST LIST, AMONG OTHER THINGS, ALL RAW MATERIALS THAT COULD CONTAIN ANY OF THE 121 CRITICAL MATERIALS. THE E.P.A. HAS A LIST OF PRIORITY POLLUTANTS AND ALSO SOON WILL HAVE A LIST OF HAZARDOUS AND TOXIC MATERIALS. FOR TWO OF THESE CRITICAL MATERIALS THAT HAVE BEEN IN THE NEWS LATELY, MERCURY AND PCB (POLYCHLORINATED BIPHENYL), WE HAD TO FILL OUT SPECIAL FORMS. WE HAVE HAD BOTH OUR WASTE EFFLUENT AND PAPER PRODUCTS TESTED FOR PCB BY AN INDEPENDENT LABORATORY AND THE LEVELS OF THIS CONTAMINANT ARE AT THE 7-10 PPB LEVEL - DETECTION LEVEL. THIS IS NOT SURPRISING BECAUSE WE HAD PREVIOUSLY SENT

INQUIRIES, THROUGH OUR PURCHASING DEPARTMENT, TO ALL OUR SUPPLIERS REQUIRING INFORMATION ON ALL THE RAW MATERIALS OR CHEMICALS SOLD TO ALLIED AS TO CRITICAL MATERIALS CONTENT. NO RAW MATERIAL OR CHEMICAL IS PURCHASED UNLESS IT IS U.S.FDA APPROVED. INDUSTRY HAS AN EXCELLENT TRACK RECORD IN THE POLLUTION CONTROL OR ABATEMENT FIELD IN THE LAST FEW YEARS. 20% OF ALL THE WATER POLLUTION COMES FROM INDUSTRY - 80% COMES FROM MUNICIPAL WASTE. ANOTHER INTERESTING STATISTIC IS THAT 80% OF INDUSTRY IS IN COMPLIANCE WITH NPDES PERMITS, 50% OF MUNICIPALITIES AND 20% OF GOVERNMENT INSTALLATIONS. GOVERNMENT FUNDING IS 0% FOR INDUSTRY, 75% FOR MUNICIPALITIES AND 100% FOR GOVERNMENT INSTALLATIONS. SO HOW ABOUT THAT FOR CREDIBILITY FOR THE INDUSTRY SEGMENT OF OUR SOCIETY.

THE OTHER SIDE OF THE COIN OF WASTE TREATMENT OR POLLUTION ABATEMENT IS CONSERVATION. I HAVE ALREADY NOTED THAT ALLIED HAS REDUCED ITS WASTE FLOW 78.7% BUT THIS ISN'T GOOD ENOUGH. OUR GOAL IS TO GET OUR WATER USAGE DOWN BELOW THE 10,000 GALLONS PER TON OF PAPER PRODUCED LEVEL - MEANING 2.8 MGD. TO ACHIEVE THIS GOAL WE HAVE MET EACH TUESDAY FOR THE LAST TWO YEARS WITH MANUFACTURING, MAINTENANCE, ENGINEERING AND R&D PERSONNEL TO PLAN AND INITIATE PROJECTS WHICH WILL REDUCE OUR FRESH WATER USAGE BY RECYCLING BOTH FRESH WATER AND WHITE WATER.

AS PER U.S.E.P.A. AND MICHIGAN DNR REQUIREMENTS, ALLIED HAS UNDER AL VICKERY'S DIRECTION AND PLAN, PREPARED POLLUTION INCIDENCE PREVENTION PLANS (PIPP). THESE ARE FILED WITH BOTH EPA AND DNR AND HAVE TO BE AT HAND FOR INSPECTION BY EPA PEOPLE WHEN THEY PAY US THOSE SURPRISE VISITS.

THE DNR INSPECTS US UNANNOUNCED ONCE A YEAR AND TAKES SAMPLES AND FLOWS TO SEE IF WE ARE IN COMPLIANCE. THIS YEAR THEY CAME MARCH 27 AND 28 AND WE WERE IN COMPLIANCE. IN ADDITION, THIS YEAR THEY DID A BIOASSAY ON OUR EFFLUENT AND NOTED THAT "EFFLUENT FROM OUTFALL 390.006 WAS NOT TOXIC TO D. MAGNA ON AN ACUTE (SHORT TERM) BASIS. A 48 HOUR LC50 (EFFLUENT CONCENTRATION LETHAL TO 50% OF THE TEST ORGANISMS) COULD NOT BE CALCULATED DUE TO LACK OF DAPHNID MORTALITY." OUR EFFLUENT WAS ALSO TESTED FOR HEAVY METALS, CHROMIUM AND ZINC WITH RESULTS OF <10 PPB AND 10 PPB, NEGLIGIBLE BELOW DETECTIBLE LEVEL.

WEEKLY FROM LATE APRIL UNTIL LATE OCTOBER OR EARLY NOVEMBER, JOHN ROTH TAKES A RIVER SURVEY WHICH MEANS HE TAKES SAMPLES FROM TWO (2) POINTS ABOVE OUR DISCHARGE TO PORTAGE CREEK (KILGORE ROAD AND CORK STREET), AND FOUR (4) POINTS BELOW (ALCOTT, REED ST., VINE AND PITCHER) AS WELL AS A MOSEL AVENUE SAMPLE FROM KALAMAZOO RIVER. THESE SAMPLES ARE TESTED FOR D.O., TEMPERATURE AND TURBIDITY. THE D.O. IS NEVER BELOW 4 PPM AND MOST ALWAYS AT 5.0 PPM D.O. AND ABOVE, BELOW OUR DISCHARGE. OFTEN OUR EFFLUENT DISCHARGE IS IN THE 4 TO 5 D.O. RANGE.

WE SHOULD MENTION AT THIS POINT THAT DURING THE LAST YEAR WE COMPLETED A $42,000 PROJECT THAT WAS FOSTERED ON US BY THE DNR - THAT IS OF PICKING UP THE BRYANT SAND FILTER BACK FLUSH WATER - ABOUT 400,000 GALS/DAY CONTAINING ABOUT 5# BOD, 450# SUSPENDED SOLIDS (TAKEN OUT OF THE CREEK WATER). THE SYSTEM WAS COMPUTERIZED BY DAVE RANDALL SO THAT IT OPERATES AUTOMATICALLY.

FUTURE DEVELOPMENTS

RESEARCH AND DEVELOPMENT IN WASTE TREATMENT AND POLLUTION CONTROL IS AN ON-GOING PROCESS. WE DON'T KNOW WHAT THE PROVISIONS WILL BE IN THE NEW NPDES PERMIT WE HAVE JUST MADE APPLICATION FOR AND WHICH COMES DUE IN OCTOBER. FOR

1) TO REDUCE WATER USAGE AND THUS WASTE WATER DISCHARGE TO 10,000 GALS/TON OF PAPER, 2) TO REDUCE OUR CITY SEWER COSTS, 3) TO RECYCLE MORE WHITE WATER AND USE MORE WHITE WATER IN PLACE OF FRESH WATER, 4) TO PILOT PLANT A PRESSURE TYPE HIGH RATE FILTRATION UNIT FOR CLARIFIER EFFLUENT FLOW. WE ENVISION A NEW UNIT THAT COULD REPLACE THE INEFFICIENT MONARCH AND BRYANT FILTER PLANTS AND USE BOTH PORTAGE CREEK WATER AND CLARIFIER EFFLUENT FOR THE INFLUENT TO THIS PLANT.

THE CITY OF KALAMAZOO'S NEW AWT PLANT WILL COST SOME 80 MILLION DOLLARS AND THUS THE COST PER MGD FOR US WILL INCREASE AND ALSO THE CITY, AS PER P.L. 92-500, WILL HAVE TO ASSESS AN INDUSTRIAL COST RECOVERY FEE FOR 30 YEARS WHICH COULD COST ALLIED $750,000 OVER A 30 YEAR PERIOD UNLESS THIS PART OF THE LAW IS REPEALED.

THEN WE ARE NOT SURE OF THE IMPACT OF PRETREATMENT STANDARDS, TOXIC SUBSTANCE ACT PROVISIONS, NEW WATER QUALITY STANDARDS, THE GROUND WATER PROTECTION BILL OR A HOST OF OTHER REGULATIONS THAT OUR LEGISLATORS SEE FIT TO PROMULGATE TO PROTECT THE ENVIRONMENT. IT WILL GET TOUGHER AND MORE COMPLICATED. WE AT ALLIED THAT ARE INVOLVED IN POLLUTION CONTROL ARE VERY PROUD OF OUR RECORD AND ACCOMPLISHMENTS AND SO SHOULD ALL OF YOU. BUT THE JOB OF DOING THE BEST WE CAN, MUST INVOLVE ALL OF. DO YOUR SHARE - YOU KNOW WE WILL. THANK YOU.

SLIDES FOR SPEECH AT SUPERVISORY MEETING - JULY 17, 1979

1. MONARCH MILL
2. MONARCH CLARIFIER
3. BRYANT CLARIFIER
4. MONARCH MILL POND
5. BRYANT POND BOTTOM
6. ALCOTT STREET DAM
7. FLOW SCHEMATIC
8. MILL D SUMP
9. GREY TANK
10. MONARCH & BRYANT CLARIFIERS AND 16" PIPE
11. STILLING WELL
12. PARSHALL FLUME (HEAD END)
13. PARSHALL FLUME (DISCHARGE)
14. MONARCH CLARIFIER WEIR SAMPLE PIPE AND CONTROL BUILDING
15. COMPUTERIZED CONTROL SYSTEM SCHEMATIC
16. MONARCH CLARIFIER PUMP HOUSE, VALVE HOUSE, CONTROL BUILDING
17. SAMPLES
18. TURBIDITY METER, pH AND FLOW METER
19. WORK BENCH AREA
20. I.O. AND C.P.U.
21. CRT AND DECWRITER
22. CRT AND DECWRITER
23. TOC ANALYZER
24 TOC CHART
25. FURNACE
26. INJECTOR
27. TANK TRUCK
28. PORTAGE CREEK - REED STREET + GAUGING STATION

File
[illegible]
[illegible]

November 13, 1957

Water Resources Commission
P. O. Box 87
Lansing, Michigan

ATTENTION: Mr. Milton [illegible] Adams
Executive Secretary

Dear Milt.

During the past four months we have put a tremendous number of man hours in evaluating and checking our mill waste and mill effluent. We realize that the commission is not at all satisfied with the performance of the paper mills in terms of stream pollution and that the Kalamazoo River is still badly overloaded. As a result of our work, we are embarking on a program amounting to about one-half million dollars and which specifically involves the installation of Sveen-Pedersen savealls on every one of our 11 machines. We have figured that as a result of this program our water usage will be cut nearly in half and the load to our waste treatment plants will be cut by approximately 40%. This in itself may make secondary treatment feasible although we anticipate, based upon some of our tests, that we will be enough below our present order to receive a satisfactory rating from the commission. This program will take approximately one year for completion and will be started with two machines at the Bryant mill followed by two machines at the [illegible]ing mill and thereafter on a set schedule covering all 11 machines.

You will probably be interested to know that we have temporarily had to give up our idea of building a pulp mill here in Kalamazoo principally because of financing, but in no small measure because of the fact that the recovery unit at Watervliet has not performed up to expectations and we still think it would be quite a gamble to put the pulp mill in without first having very definite answers on how to handle the waste effluent effectively and without increasing the pollution of Portage Creek.

We are giving you this information as a more or less interim report and would be glad to discuss the details with members of your staff at any time. Perhaps we might add that we are investigating a new process of deinking which in itself may reduce stream pollution somewhat, but this is in its very early stages and it will be some time before we have any definite answers.

Please be assured that we are willing and most anxious to cooperate with your commission at all times and would welcome suggestions and criticisms which you or members of your staff may care to offer.

Kindest personal regards.

Yours very truly,

ALLIED PAPER CORPORATION

W. A. Kirkpatrick/dcm

cc: Mr. Tony Palladino
Waste Treatment Consultant

NCASI 888943

ENVIRONMENTAL PROTECTION AGENCY
SURVEY FORM
PULP, PAPER, AND PAPERBOARD INDUSTRY

1976

NON-INTEGRATED MILLS
PART I

I. MILL BACKGROUND DATA

A. Mill & Division Name: Bryant Division, Allied Paper, Inc.

Address: 2030 Portage St., Kalamazoo, MI ZIP: 49001

Telephone: 616 / 345-7131

Corporate Affiliation (if applicable) SCM Corporation

Contacts and Title: (Use an asterisk next to the responsible personnel completing the survey form).

E. J. Gilman	Vice President - Operations
*U. G. Stoeffler	Manager Process Development

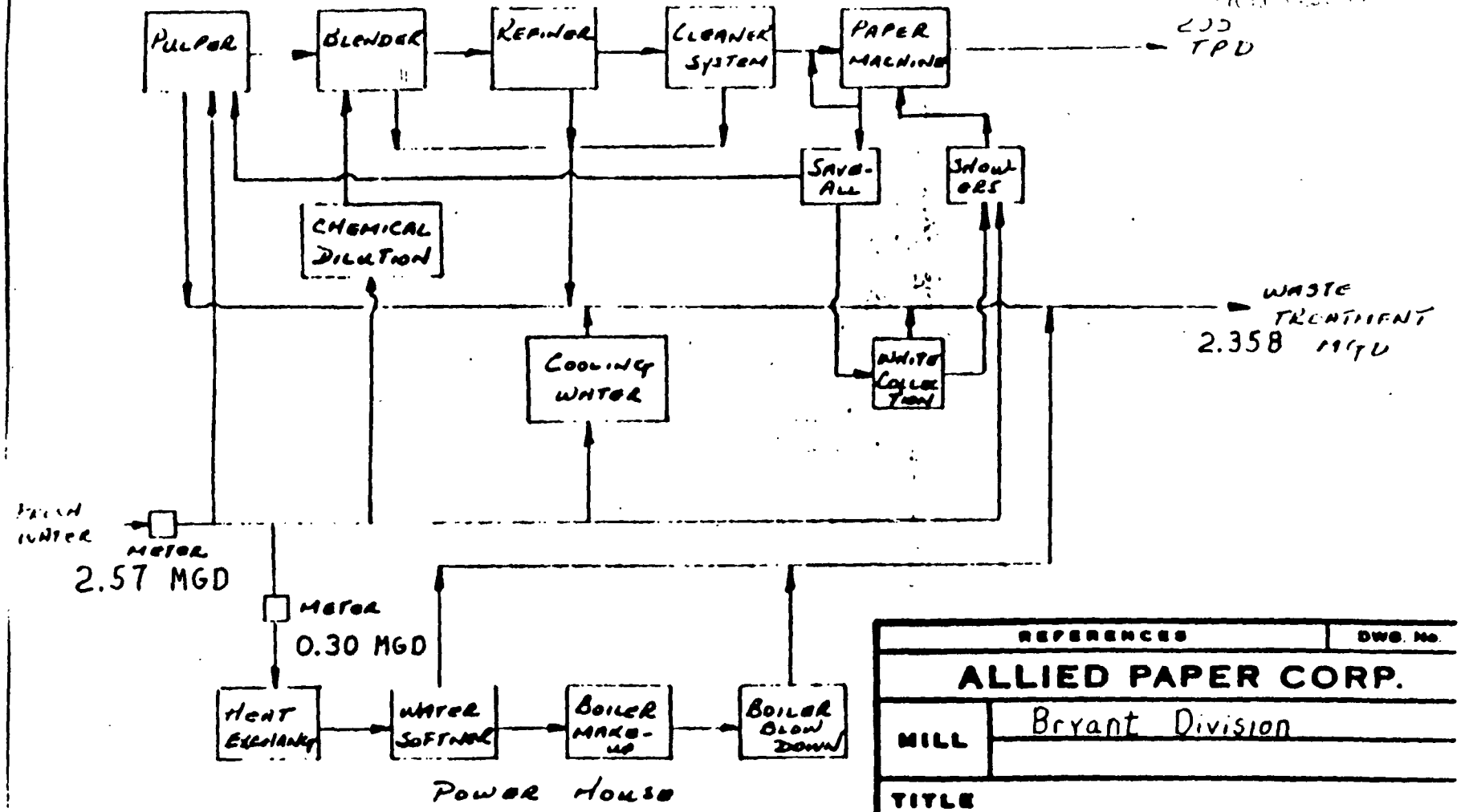
B. Age of Mill

1. Year of initial construction 1905

2. Please give the year of initial startup and each year since 1952 in which any major modifications or permanent shutdowns were made which significantly affected the composition or amount of effluent from the mill.

	Year(s) of Initial Startup	Year(s) of Waste Significant Modification or Permanent Shutdown
a. Added Paper Machine Saveall(s)	5 - 1958	
b. Added New Paper Machine(s)		

Bryant, undated



REFERENCES	DWG. No.

ALLIED PAPER CORP.

MILL: Bryant Division

TITLE: MILL Process Flow Diagram

REVISIONS	

SCALE	NO	DAY	YR.	DWG. No.
DRAWN				
TRACED				
CHECKED				
CHECKED				
APPROVED				

SR 030395

92-2362

Tom K - reply - rcf - for Od Mtg

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

October 2, 1969

Mr. Robert Courchaine
Regional Engineer
Bureau of Water Management
Department of Natural Resources
Stevens T. Mason Building
Lansing, Michigan 48926

Dear Bob:

We are pleased to announce that Allied Paper as of 8:00 on Monday morning, September 29, 1969, began sending the effluent from its Bryant clarifier to the City of Kalamazoo interceptor.

We appreciate the fine cooperation we have had with you and other members of the staff in helping us with this plan.

Best personal regards.

Yours very truly,

ALLIED PAPER INCORPORATED

U. G. Stoeffler
Manager Process Development

UGS:ks

cc: R. M. Levy - Allied
E. J. Gilman - Allied
Mr. Donald Swets - Dept. of Public Works

RECEIVED
OCT 6 1969
WATER RESOURCES COMMISSION

0002620

SA 011319

92-2315

MICHIGAN WATER RESOURCES COMMISSION

Report of Sampling

[redacted]
Kalamazoo, Michigan

[redacted]

On September 29, 1969, a sample was taken from the Monarch clarifier effluent which now consists of white water from both Monarch and Bryant mills. De-ink waste waters are now directed into the Kalamazoo municipal sanitary system. The sample of white water effluent had analyses as follows:

5 day B.O.D.	32 mg/l
Suspended solids	92 mg/l
Susp. Volatile Solids	32 mg/l
pH	7.4

This waste flow barely discolored the Bryant mill pond and represented a marked improvement over past conditions. However, Portage Creek below Alcott Street appeared virtually unchanged. This is attributed to waste from the de-ink bleach water sewer which drains into the Bryant pond about 100 yards south of Alcott Street. This flow, previously measured at about .500 mgd., had analyses as follows:

5 day B.O.D.	>73 mg/l
Suspended solids	148 mg/l
Susp. Volatile solids	68 mg/l
Chlorine	250 mg/l
pH	3.1

Little impetus has been given to the abatement of oil pollution from Allied Paper. A real problem exists in this area and was discussed between the writer and Messrs. Gilman and Stoeffler of the company on August 26, 1969. On September29, 1969, a sample taken from Portage Creek at Reed Street contained 5.2 mg/l of chloroform extractable substances

At times oil from Portage Creek and namely Allied Paper Corporation has been of sufficient quantity to cover the Kalamazoo River with an irridescent film. (35 mm slides have been taken to depict this condition).

James L. Pope

JLP:as

0002618

92-2360

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

February 13, 1970

Robert Courchaine, Regional Engineer
Bureau of Water Management
Dept. of Natural Resources
Stevens T. Mason Bldg.
Lansing, Michigan 48926

Dear Bob:

We are pleased to report to you that as of this week we no longer discharge our Chlorine drop-leg water directly into Bryant Mill pond. This water formerly flowed by gravity from a vacuum seal box into the pond. After much discussion and investigation, we decided to pump this water to our Monarch Clarifier together with the white water from our Bryant Paper Mill Divisions. To accomplish this we now pump from the vacuum seal box into the large surge tank. This is the same surge tank that receives the paper mill white water from our Mill C and D operations.

To date we have not encountered any problems with this new arrangement.

You will recall that I discussed with you, our concern about the appearance that this discharge made to the pond, and that we would make an investigation to determine the remedial action.

Yours very truly,

ALLIED PAPER, INC.

U. G. Stoeffler,
Manager Process Development

jm/UGS

cc: R. M. Levy - Allied
E. J. Gilman - Allied

RECEIVED
FEB 1? 1970
0002613 WATER RESOURCES COMMISSION

INTER-OFFICE CORRESPONDENCE

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

CONFIDENTIAL

TO: Les Stoeffler **WRITTEN BY:** Jack Gilman

OFFICE: Kalamazoo **OFFICE:** Kalamazoo

SUBJECT: Portage Creek **DATE:** October 2, 1969

Our next goal in the clarification of Portage Creek should be to pick up the Chlorine Oliver drop leg water, which is now going directly into the Creek, and send it to the Monarch clarifier by way of the collection tank. Furthermore, it should be our aim to do this without increasing the present flow to the Monarch clarifier, which is about 3 MGD.

To accomplish this step, we need to pick up additional fresh water in "C", "D", and Monarch, totaling about 500,000 GPD, which is the approximate flow from the Chlorine Oliver. One such possibility occurred to me yesterday, and I mentioned it to Bob Dennany and Ray Willie; it is to put the size press water from Numbers 10 and 11 into the fresh water sump under No. 11 and thence directly into the Creek. This could give us a good start toward the half-million GPD that we are looking for.

I would like Engineering to come up with a proposal for pumping the drop leg water into the collection tank, with estimated cost. I believe that this could be included in the overall $100,000 project for Portage Creek clarification.

I would like Les Stoeffler to tell us of the effect this water would have on our pumps and pipes, and also how it would effect the operation of the Monarch clarifier.

Jack

Jack

EJG:jl

cc: Bob Dennany
Al Vickery
Ken Sweet
Dick Bennett

Box 0496 Allied WWT

92067-B-2.4/080

SCM CONFIDENTIAL

93-1803

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

March 8, 1976

NEW WASTEWATER TREATMENT
SYSTEM DESCRIPTION

The present system of collecting wastewaters from Bryant Mill "C" and Mill "D" and pumping these wastes to the "Gray Tank" will remain exactly the same. Additional pumping capacity and piping changes at the Mill "D" pump sump have been completed. These involved the installation of a third pump and a common outlet header to both pipes from this sump to the "Gray Tank".

In the new system, all Bryant Division wastewater will be pumped to the Bryant 100-ft. diameter clarifier, and all the Monarch Division wastewater will be pumped to the Monarch 90-ft. diameter clarifier. The Bryant wastewater will be conveyed through the existing 20" and 12" pipes up to a point near the Bryant clarifier where the two flows will be combined in the 20" pipe through a new 12" crossover pipe. The Bryant clarifier effluent will be split between the existing 20" line to the City sewer trunk and a new 12" pipe to Monarch clarifier. The effluent flow segment to Monarch clarifier will be taken off before the wier through a new 12" pipe to the existing 12" pipe to Monarch clarifier. This effluent segment flow to Monarch clarifier will be modulated by a control valve; the signal to this valve is an output from the control center computer.

In order to insure compliance with the 1977 BOD5 limitation, it was deemed necessary to analyze the effluent discharge from the Monarch clarifier to Portage Creek on a continuous basis for this parameter. The total organic carbon content of our waste was determined to have a relationship with BOD content on a nearly one-to-one ratio. A TOC on-stream analyzer therefore is the key instrument in this computer-controlled system. A new control center building, located near the Monarch clarifier, will house the effluent sampling devices, analytical and measuring devices and the computer. To control the effluent flow to Portage Creed, the computer will have inputs from the Robertshaw flow recorder and the TOC Analyzer, and will send an output signal to the control valve in the 12" line from the Bryant clarifier effluent to the Monarch clarifier wet well. All other effluent parameters that are reported to the DNR monthly will be fed to the computer for storage and future print-out.

MDNR 003888

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION
PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

April 28, 1975

RECEIVED
APR 30 1975
Water Qual. Control

Mr. R. J. Courchaine
Department of Natural Resources
Water Resources Commission
Stevens J. Mason Building
Lansing, MI 49926

Dear Mr. Courchaine:

Allied Paper Incorporated submits these plans to comply with the provisions of its NPDES Permit MI 0000779 under Schedule of Compliance "Preliminary Design of Said Facilities" to be approved by June 30, 1975.

To comply with the restrictive BOD limitations of 560* lbs. BOD/day maximum, for warm weather months, Allied decided it would have to analyze its effluent discharge for this parameter by a more accurate and instantaneous method. The method of analysis should also be capable of supplying a computer imput resulting in a computer signal for a flow control valve. The TOC Stream Analyzer coupled with a minicomputer satisfies these requirements.

Our proposed plan for facilities involves the use of both our 100 ft. diameter Bryant clarifier and 90 ft. diameter Monarch clarifier. All the waste water from our Bryant Division (Mills "C", "D" AND "E") would be pumped to the Bryant clarifier and all the waste water from our Monarch Division would be pumped to the Monarch clarifier where a chemical coagulant is also added. The Bryant clarifier effluent flows via a 20" line to a City interceptor sewer and the Monarch clarifier effluent discharges into Portage Creek (discharge 002). Previous trials utilizing the aforementioned waste flow arrangements have established that all 1977 discharge limitations can be met by this configuration including pounds/day of BOD. In fact, the BOD loading to Portage Creek was somewhat below the permit limitations. To fully utilize the BOD limitations (as well as the other parameter limitations), we propose to divert a portion of Bryant clarifier effluent to the Monarch clarifier influent wet well. The minicomputer would receive

*Revised from 365 lbs./day as per Karl Zollner's letter of February 3, 1975.

imputs from the Robertshaw Flow Recorder, the TOC analyzer, and U.S.G.S. gaging station (on Portage Creek at Reed Street), flow and temperature readings. The minicomputer will send an electrical signal to a control valve in the Bryant clarifier effluent line to divert just enough of this stream to Monarch clarifier wet well to met the BOD limitations and assure the water quality in Portage Creek. Regular BOD - TOC tests will be made to check the correlation curve and regular standardization checks made on the TOC analyzer. The flow in the 20" pipe line to the City sewer will be measured after the diversion control valve. All this new equipment will be housed in a new building near the Monarch clarifier.

To date, Allied personnel have investigated and viewed the operation of several TOC analyzers and have established a TOC - BOD correlation curve based on samples from our Monarch clarifier sent to an outside laboratory. Our Engineering Department has confirmed the feasibility of all aspects of the proposed plan.

We submit the plan for your approval so that we may proceed with preparation of specifications, of equipment, piping, and the building, establish costs and get approval for the whole project.

Very truly yours,

ALLIED PAPER INCORPORATED

U. G. Stoeffler

U. G. Stoeffler
Manager, Process Development

UGS:mr

cc: E. J. Gilman, Vice President, Manufacturing
F. Harrison, Vice President, R & D
Ray J. Willie, Senior Technician, R & D

cc: C. Harvey

C H

0000779 8/17/75

93-1798

MDNR 3844 TOTAL P.02

ENVIRONMENTAL PROTECTION AGENCY
SURVEY FORM
PULP, PAPER, AND PAPERBOARD INDUSTRY

1976

NON-INTEGRATED MILLS
PART I

I. MILL BACKGROUND DATA

A. Mill & Division Name: Monarch Division, Allied Paper, Inc.

Address: 2030 Portage St., Kalamazoo, MI , ZIP: 49001

Telephone: 616 / 345-7131

Corporate Affiliation (if applicable) SCM Corporation

Contacts and Title: (Use an asterisk next to the responsible personnel completing the survey form).

T. I. Gill	Vice President - Operations
*J. G. Stoeffler	Manager Process Development

B. Age of Mill

1. Year of initial construction 1885

2. Please give the year of initial startup and each year since 1952 in which any major modifications or permanent shutdowns were made which significantly affected the composition or amount of effluent from the mill.

	Year(s) of Initial Startup	Year(s) of Waste Significant Modification or Permanent Shutdown
a. Added Paper Machine Saveall(s)	One - 1974	
b. Added New Paper Machine(s)		

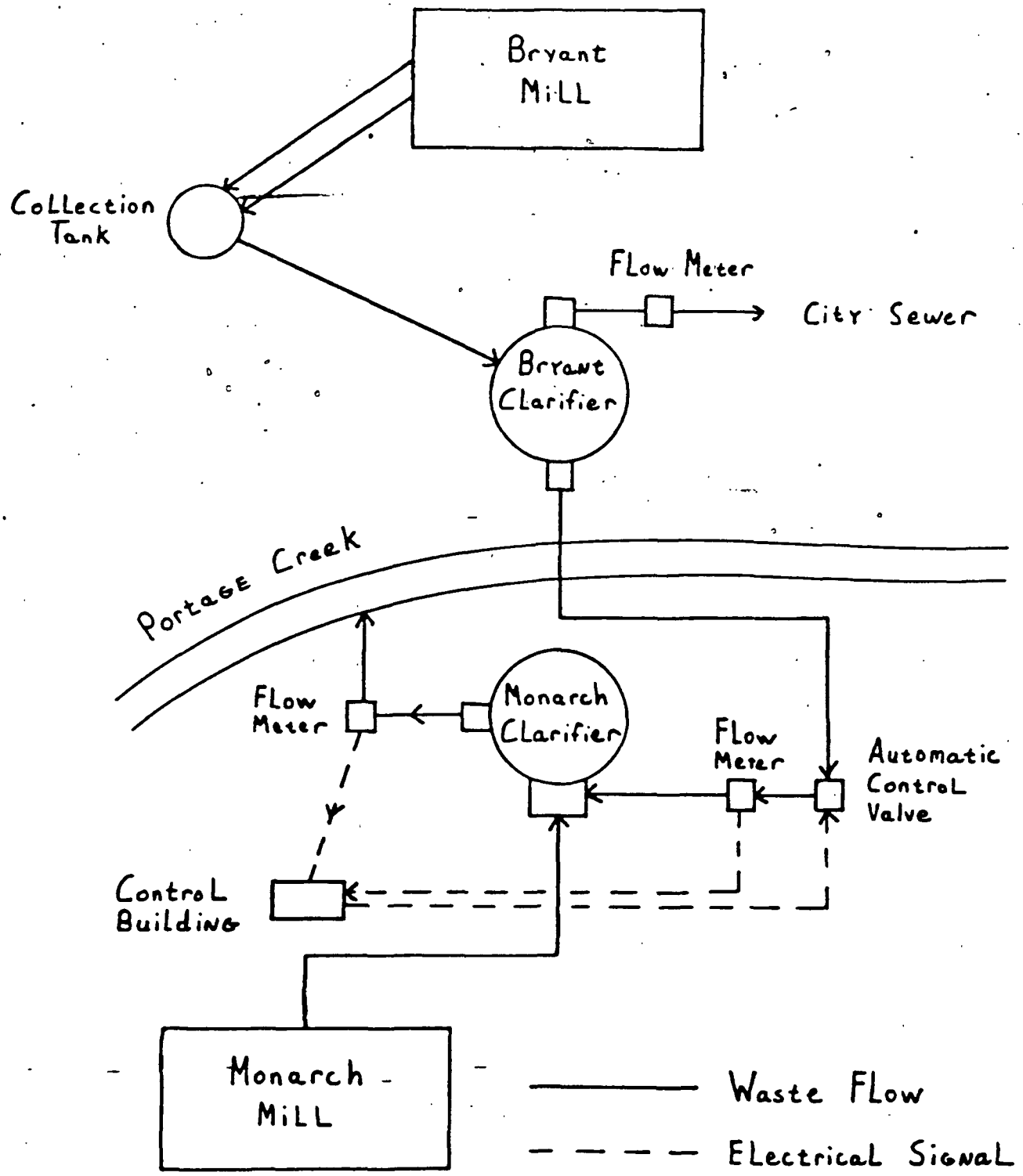
Mill Monarch Division Location Kalamazoo, MI

Explanation on reporting in Section II, A-3, 4, 8 and B-13, 15 and Section V, 251-254, a, b, c.

On July 1, 1977 Allied Paper Inc. changed the waste treatment system for the Monarch and Bryant Divisions to comply with new NPDES permit limitations on BOD of 385#/day maximum. The Waste Treatment Flow Schematic (attached next) shows the flow patterns. Bryant Division Clarifier is therefore both a direct and indirect discharger and is so noted in splitting Section V, 254 into two columns of direct and indirect discharge. For simplicity, 253 column is eliminated.

Since the new waste treatment system was put in line July 1, 1977, Section II, A-3, 4, 8 and B-13 and 15 contain both figures for calender year 1976 and July 1, 1977 to October 1, 1977. Section V, 251-254 figures are for July 1 to October 1, 1977 period only.

FLOW SCHEMATIC



M.L.S

Mill: Monarch Division Location: Kalamazoo, MI

II. PRODUCTION INFORMATION

A. Pulp*** Consumed	Average Daily** Air Dry Tons/Day Hardwood	Average Daily** Air Dry Tons/Day Softwood	Maximum Day Air Dry Tons/Day Hardwood	Maximum Day Air Dry Tons/Day Softwood	Maximum Month Air Dry Tons/Day Hardwood	Maximum Month Air Dry Tons/Day Softwood
3. Bleached Kraft		25 (25)		38 (29)		34 (27)
4. Unbleached Kraft		9 (10)		12 (12)		11 (11)
5. Bleached Soda						
6. Sulfite						
7. Wastepaper						
8. Other (please list) Miscellaneous	3 (0)		5 (0)		4 (0)	

	Average Daily** Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
B. Products			
9. Market Pulp NOT APPLICABLE			
a. Pulp Bales and/or Rolls			
b. Wet Lap Pulp			
c. Slushed Pulp			
10. Groundwood Molded Pulp NOT APPLICABLE			
11. Newsprint NOT APPLICABLE			
12. Groundwood Printing, Writing and Related NOT APPLICABLE			
a. Uncoated Groundwood Printing and Converting			
b. Clay (50% or more Kaolin) Coated Groundwood Printing and Converting			

*Measured at the winder or pulp dryer.

**Average Daily = $\frac{\text{Total production for the year}}{\text{Total number of production days for the year}}$

***Numbers in ( ) are for period July-Oct.1, 1977. Other numbers are for year 1976.

SA 033953

Mill: Monarch Division Location: Kalamazoo, MI

B. Products (continued) **	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
c. Groundwood Specialties			
d. Other			
13. Wood Free Printing, Writing and Related			
a. Uncoated Free Sheet Printing	16 (18)	20 (20)	18 (20)
b. Clay (50% or more Kaolin) Coated Free Printing			
c. Uncoated Writing and Related			
d. Uncoated Solid Bleached Bristols			
e. Clay (50% or more Kaolin) Coated Solid Bleached Bristols			
f. Other Cigarette tipping	9 (7)	15 (13)	11 (8)
14. Cotton Fiber Papers NOT APPLICABLE			
a. Writing and Related			
b. Technical			
c. Other			
15. Thin Papers			
a. Carbonizing	10 (9)	13 (13)	12 (10)
b. Cigarette			
c. Other Crimping	1 (3)	3 (5)	2 (3)
16. Packaging and Industrial Converting NOT APPLICABLE			
a. Unbleached Kraft			
b. Bleached Kraft			
c. Other			

*Measured at the winder or pulp dryer.
**Numbers in ( ) are for period July 1-Oct.1, 1977. Other numbers are for year 1976.

Mill: Monarch Division Location: Kalamazoo, MI

B. Products (continued)	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
17. Specialty Packaging and Industrial Converting NOT APPLICABLE			
a. Tape Backing			
b. Saturating			
c. Gasket			
d. Other (please list)			
18. Sanitary Tissue NOT APPLICABLE			
19. Unbleached Kraft Paperboard (80% or more unbleached Kraft pulp) NOT APPLICABLE			
a. Linerboard			
b. Folding			
c. Other			
20. Semi-Chemical Paperboard (75% or more semi-chemical pulp) NOT APPLICABLE			
a. Corrugating			
b. Other			
21. Bleached Paperboard (not less than 80% bleached chemical wood pulp) NOT APPLICABLE			
a. Clay Coated Bleached Food Board			
b. Uncoated Bleached Food Board			
c. Bleached Linerboard			
d. Folding			
e. Other			

*Measured at winder or pulp dryer.

SA 033955

ENVIRONMENTAL PROTECTION AGENCY
SURVEY FORM
PULP, PAPER, AND PAPERBOARD INDUSTRY

1976

NON-INTEGRATED MILLS
PART I

I. MILL BACKGROUND DATA

A. Mill & Division Name: Bryant Division, Allied Paper, Inc.

Address: 2030 Portage St., Kalamazoo, MI ZIP: 49001

Telephone: 616 / 345-7131

Corporate Affiliation (if applicable) SCM Corporation

Contacts and Title: (Use an asterisk next to the responsible personnel completing the survey form).

E. J. Gilman	Vice President - Operations
*U. G. Stoeffler	Manager Process Development

B. Age of Mill

1. Year of initial construction 1905

2. Please give the year of initial startup and each year since 1952 in which any major modifications or permanent shutdowns were made which significantly affected the composition or amount of effluent from the mill.

	Year(s) of Initial Startup	Year(s) of Waste Significant Modification or Permanent Shutdown
a. Added Paper Machine Saveall(s)	5 - 1958	
b. Added New Paper Machine(s)		

Mill: Bryant Division Location: Kalamazoo, MI

	Year(s) of Initial Startup	Year(s) of Waste Significant Modification or Permanent Shutdown
c. Paper Machine Rebuild(s)		
d. Added Stock Prep. System		
e. Added Broke Storage		
f. Elimination of Paper Machine(s)		
g. Other (Please List)		
Deinking Mill		Shut down 1972

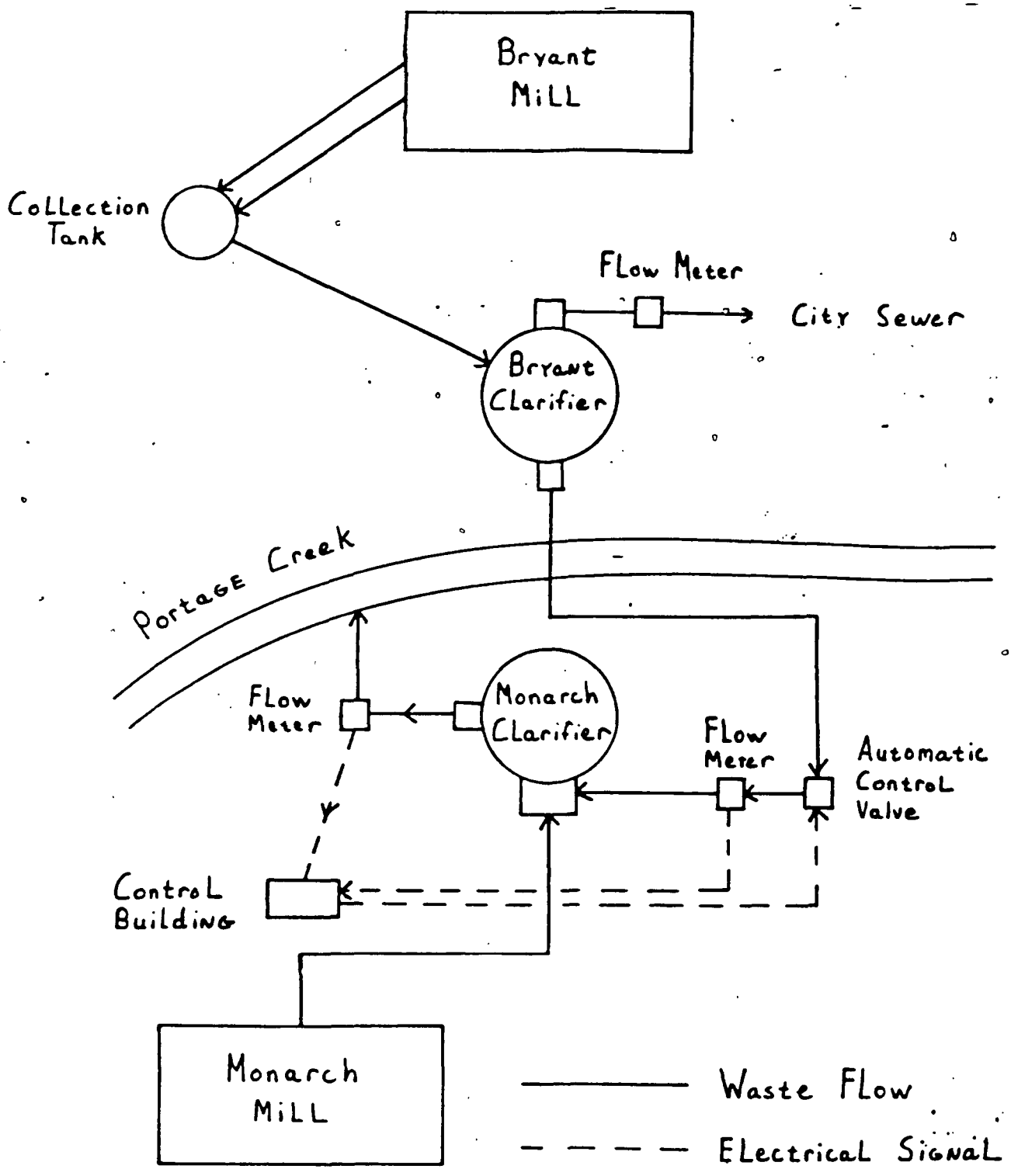
Mill Bryant Division Location Kalamazoo, MI

Explanation on reporting in Section II, A-3, 4, 8 and B-13, 15 and Section V, 251-254, a, b, c.

On July 1, 1977 Allied Paper Inc. changed the waste treatment system for the Monarch and Bryant Divisions to comply with new NPDES permit limitations on BOD of 385#/day maximum. The Waste Treatment Flow Schematic (attached next) shows the flow patterns. Bryant Division Clarifier is therefore both a direct and indirect discharger and is so noted in splitting Section V, 254 into two columns of direct and indirect discharge. For simplicity, 253 column is eliminated.

Since the new waste treatment system was put in line July 1, 1977, Section II, A-3, 4, 8 and B-13 and 15 contain both figures for calender year 1976 and July 1, 1977 to October 1, 1977. Section V, 251-254 figures are for July 1 to October 1, 1977 period only.

ALLIED'S WASTE TREAMENT FLOW SCHEMATIC



Mill: Bryant Division Location: Kalamazoo, MI

II. PRODUCTION INFORMATION

A. Pulp Consumed ***	Average Daily** Air Dry Tons/Day Hardwood	Average Daily** Air Dry Tons/Day Softwood	Maximum Day Air Dry Tons/Day Hardwood	Maximum Day Air Dry Tons/Day Softwood	Maximum Month Air Dry Tons/Day Hardwood	Maximum Month Air Dry Tons/Day Softwood
3. Bleached Kraft	11 (15)	148(159)	35(24)	195(183)	29(19)	178(166
4. Unbleached Kraft						
5. Bleached Soda						
6. Sulfite						
7. Wastepaper						
8. Other (please list)						
Semi-blended		5 (2)		14 (5)		12 (3)
Misc. Pulp Substitute	4 (3)		10 (7)		8 (5)	

*** Numbers in ( ) are for July 1-Oct. 1, 1977. Other figures are for 1976.

B. Products 9-12 NOT APPLICABLE	Average Daily** Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Mon Air Dry* Tons/day
9. Market Pulp			
a. Pulp Bales and/or Rolls			
b. Wet Lap Pulp			
c. Slushed Pulp			
10. Groundwood Molded Pulp			
11. Newsprint			
12. Groundwood Printing, Writing and Related			
a. Uncoated Groundwood Printing and Converting			
b. Clay (50% or more Kaolin) Coated Groundwood Printing and Converting			

*Measured at the winder or pulp dryer.

**Average Daily = $\frac{\text{Total production for the year}}{\text{Total number of production days for the year}}$

Mill: Bryant Division Location: Kalamazoo, MI

B. Products (continued) **	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
c. Groundwood Specialties			
d. Other			
13. Wood Free Printing, Writing and Related			
a. Uncoated Free Sheet Printing	134(151)	160(180)	145(160)
b. Clay (50% or more Kaolin) Coated Free Printing	87(85)	91(90)	90(87)***
c. Uncoated Writing and Related			
d. Uncoated Solid Bleached Bristols			
e. Clay (50% or more Kaolin) Coated Solid Bleached Bristols			
f. Other			
14. Cotton Fiber Papers NOT APPLICABLE			
a. Writing and Related			
b. Technical			
c. Other			
15. Thin Papers NOT APPLICABLE			
a. Carbonizing			
b. Cigarette			
c. Other			
16. Packaging and Industrial Converting NOT APPLICABLE			
a. Unbleached Kraft			
b. Bleached Kraft			
c. Other			

*Measured at the winder or pulp dryer.

**Numbers in ( ) are for period July 1-Oct. 1, 1977. Other figures are for year of 1976.

***Note this is off machine coaters or [illegible]. The raw stock is included in (a)

Mill: Bryant Division Location: Kalamazoo, MI

B. Products (continued)	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
17. Specialty Packaging and Industrial Converting NOT APPLICABLE			
a. Tape Backing			
b. Saturating			
c. Gasket			
d. Other (please list)			
18. Sanitary Tissue NOT APPLICABLE			
19. Unbleached Kraft Paperboard (80% or more unbleached Kraft pulp) NOT APPLICABLE			
a. Linerboard			
b. Folding			
c. Other			
20. Semi-Chemical Paperboard (75% or more semi-chemical pulp) NOT APPLICABLE			
a. Corrugating			
b. Other			
21. Bleached Paperboard (not less than 80% bleached chemical wood pulp) NOT APPLICABLE			
a. Clay Coated Bleached Food Board			
b. Uncoated Bleached Food Board			
c. Bleached Linerboard			
d. Folding			
e. Other			

*Measured at winder or pulp dryer.

SA 033983

Mill: Bryant Division Location: Kalamazoo, MI

B. Products (continued)	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
22. Recycled Paperboard NOT APPLICABLE			
a. Linerboard			
b. Corrugating			
c. Chip & Filler Board			
d. Folding			
e. Set-Up			
f. Gypsum Wall Board			
g. Other			
23. Construction Paper and Board NOT APPLICABLE			
a. Construction Paper			
b. Wet Machine Board			
c. Insulating Board			
d. Hard Pressed Board			
e. Other			

*Measured at the winder or pulp dryer.

Mill: Bryant Division

Location: Kalamazoo, MI

III. PROCESS RAW MATERIALS

A. Total Mill Fiber Supply - Please provide the average tons/day for the year and quarters indicated below:

	1976 Quarter			
	1st	2nd	3rd	4th
24. Wastepaper - NOT APPLICABLE				
a. Mixed Wastepaper				
b. Boxboard Cuttings				
c. No. 1 News				
d. Special News				
e. Fibre Containers				
f. Corrugated				
g. Corrugated Cuttings				
h. Kraft Bags				
i. Kraft Cuttings				
j. Groundwood Substitutes (coated)				
k. Groundwood Substitutes (uncoated)				
l. White Shavings				
m. Colored Ledger				
n. Tab Cards				

SA 033985

Mill: Bryant Division

Location: Kalamazoo, MI

	1976 Quarter			
	1st	2nd	3rd	4th
o. Colored Kraft Substitutes				
p. White Ledger				
q. Bleached Pulp Substitutes				
r. Specialty Grades				
s. Other				

25. Other NOT APPLICABLE

SA 033986

Mill: Bryant Division Location: Kalamazoo, MI

B. Chemicals and Other Raw Materials

The following list of purchased chemicals and raw materials should be used to indicate their use in the mill process and/or process maintenance work. If a chemical is used, please circle the appropriate answer. Two answers should be marked for each numbered chemical or raw material used. The following answers are possible: (a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year is used; (d) Less than 500 lb/year is used. For some chemicals, a third answer may be marked. For chemicals applied to the surface of the formed paper, mark answer (e) surface application. If (e) is not marked the chemical will be assumed to be used internally (combined with the stock) unless the specific type of chemical would indicate otherwise (i.e., cleaners and detergents).

Adhesives

26. Animal Glue
(a) (b) (c) (d) (e)

27. Casein
(a) (b) (c) (d) (e)

28. Polyvinyl Acetate
(a) (b) (c) (d) (e)

29. Starch *
(a) (b) (c) (d) (e)

30. Styrene-Butadiene
(a) (b) (c) (d) (e)

Other

31. Protein
(a) (b) (c) (d) (e)

32. _____
(a) (b) (c) (d) (e)

33. _____
(a) (b) (c) (d) (e)

34. Alum
(a) (b) (c) (d) (e)

35. Ammonia
(a) (b) (c) (d) (e)

36. Ammonium Hydroxide
(a) (b) (c) (d) (e)

37. Amorphous Waxes
(a) (b) (c) (d) (e)

38. Asphalt
(a) (b) (c) (d) (e)

39. Binder
(a) (b) (c) (d) (e)

Bituminous Material
(list trade names)

40. _____
(a) (b) (c) (d) (e)

41. _____
(a) (b) (c) (d) (e)

Boil-Out Materials
(list trade name)

42. Quaker 3493
(a) (b) (c) (d) (e)

43. _____
(a) (b) (c) (d) (e)

44. _____

45. Bronze Powders
(a) (b) (c) (d) (e)

46. Chlorine
(a) (b) (c) (d) (e)

47. Chlorine Dioxide
(a) (b) (c) (d) (e)

*Some size press and some coating

SA 033987

Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application

Cleaners & Detergents
(list trade names)

48. DuBois' Extract
(a) (b) (c) (d) (e)

49. DeBois' DuStrypp
(a) (b) (c) (d) (e)

50. _____
(a) (b) (c) (d) (e)

Coating Adhesive
(list types)

51. Starch (see 29)
(a) (b) (c) (d) (e)

52. Casein (see 27)
(a) (b) (c) (d) (e)
Styrene-Butadiene (see 30)

53. Protein (see 31)
(a) (b) (c) (d) (e)

54. Crystalline Waxes
(a) (b) (c) (d) (e)

Cutting Fluids
(list types)

55. _____
(a) (b) (c) (d) (e)

56. _____
(a) (b) (c) (d) (e)

57.

Defoamers
(list trade names)

58. Nopco DF 122, 1407, 1600A
(a) (b) (c) (d) (e)

59. Ko-Chem DF-1
(a) (b) (c) (d) (e)

60. Nalco 75 Pulv
(a) (b) (c) (d) (e)

Degreasers
(list trade names)

61. _____
(a) (b) (c) (d) (e)

62. _____
(a) (b) (c) (d) (e)

63. _____
(a) (b) (c) (d) (e)

Dispersants
(list trade names)

64. Disodium Phosphate
(a) (b) (c) (d) (e)

65. Calgon T
(a) (b) (c) (d) (e)

66. Nopcosant K
(a) (b) (c) (d) (e)

66a. Nalco 82 balls
(a) (c)

Dyes (list types)

67. See attached sheet
(a) (b) (c) (d) (e)

68. _____
(a) (b) (c) (d) (e)

69. _____
(a) (b) (c) (d) (e)

Fillers

70. Diatomaceous Earth
(a) (b) (c) (d) (e)

71. Clay *
(a) (b) (c) (d) (e)

72. Calcium Carbonate
(a) (b) (c) (d) (e)

73. Talc
(a) (b) (c) (d) (e)

74. TiO_2
(a) (b) (c) (d) (e)

* Used in coating and wet end filler.

Mill: Bryant Division

Location: Kalamazoo, MI

Mill: Bryant Division

Location: Kalamazoo, MI

Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application.

Other

75. Fybex D*
(a) (b) (c) (d) (e)

76. Zeolex 23-P
(a) (b) (c) (d) (e)

77. _____
(a) (b) (c) (d) (e)

Fungicides
(list trade names)

78. _____
(a) (b) (c) (d) (e)

79. _____
(a) (b) (c) (d) (e)

80. _____
(a) (b) (c) (d) (e)

81. Hydrogen Peroxide
(a) (b) (c) (d) (e)

82. Oil Base Ink
(a) (b) (c) (d) (e)

83. Water Base Ink
(a) (b) (c) (d) (e)

*No longer available

Latex (list types)

84. Styrene-Butadiene (See 30)
(a) (b) (c) (d) (e)

85. _____
(a) (b) (c) (d) (e)

86. _____
(a) (b) (c) (d) (e)

87. Lime Boiler Water Chemical
(a) (b) (c) (d) (e)

88. Limestone
(a) (b) (c) (d) (e)

89. Magnesium Hydroxide
(a) (b) (c) (d) (e)

90. Magnesium Oxide
(a) (b) (c) (d) (e)

91. Oils
(a) (b) (c) (d) (e)

Organic Solvents

92. Alcohols
(a) (b) (c) (d) (e)

93. Esters
(a) (b) (c) (d) (e)

94. Ketones
(a) (b) (c) (d) (e)

Other

95. _____
(a) (b) (c) (d) (e)

96. _____
(a) (b) (c) (d) (e)

97. _____
(a) (b) (c) (d) (e)

Pigments

98. Cadmium Types
(a) (b) (c) (d) (e)

99. Chromium Types
(a) (b) (c) (d) (e)

100. Copper Types
(a) (b) (c) (d) (e)

101. Lead Types
(a) (b) (c) (d) (e)

102. Luminescent Types
(a) (b) (c) (d) (e)

103. Mercury Types
(a) (b) (c) (d) (e)

SA 033989

Mill: Bryant Division

Location: Kalamazoo, MI

Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application.

04. Organic Types
(a) (b) (c) (d) (e)

05. Zinc Types
(a) (b) (c) (d) (e)

Other

06. Iron Oxide
(a) (b) (c) (d) (e)

07. Yellow Ochre
(a) (b) (c) (d) (e)

08. Ultramarine Blue 9775A
(a) (b) (c) (d) (e)

Plasticizers (list types)

09. Calcium Stearate
(a) (b) (c) (d) (e)

10. _____
(a) (b) (c) (d) (e)

11. _____
(a) (b) (c) (d) (e)

Polymers

12. Cellulose Acetate
(a) (b) (c) (d) (e)

13. Cyclized Rubber
(a) (b) (c) (d) (e)

114. Ethyl Cellulose
(a) (b) (c) (d) (e)

115. Nitrocellulose
(a) (b) (c) (d) (e)

116. Polyethylene
(a) (b) (c) (d) (e)

Other

117. Hydroxyethyl cellulose
(a) (b) (c) (d) (e)

118. Sodium Alginate
(a) (b) (c) (d) (e)

119. CMC 7L
(a) (b) (c) (d) (e)

Preservatives

120. Borax (Coating)
(a) (b) (c) (d) (e)

121. Formaldehyde (Coating)
(a) (b) (c) (d) (e)

122. Glyoxal
(a) (b) (c) (d) (e)

Other

123. Nalco 701
(a) (b) (c) (d) (e)

124. Dowicide G
(a) (b) (c) (d) (e)

125. _____
(a) (b) (c) (d) (e)

126. Resins (wet strength)
(a) (b) (c) (d) (e)

Resins (other)
(list types)

127. Scripset 720
(a) (b) (c) (d) (e)

128. _____
(a) (b) (c) (d) (e)

129. _____
(a) (b) (c) (d) (e)

130. Rosin Size
(a) (b) (c) (d) (e)

131. Salt or Brine ($NaNO_3$)*
(a) (b) (c) (d) (e)

132. Salt Cake
(a) (b) (c) (d) (e)

*Used both in coating and power plant

SH 033990

Mill: Bryant Division

Location: Kalamazoo, MI

Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application.

Slimicides (Biocides)
(list trade names)

133. Nalco 7620
(a) (b) (c) (d) (e)

134. _____
(a) (b) (c) (d) (e)

135. _____
(a) (b) (c) (d) (e)

136. Sodium Bisulfite
(a) (b) (c) (d) (e)

137. Sodium Aluminate
(a) (b) (c) (d) (e)

138. Sodium Carbonate
(a) (b) (c) (d) (e)

139. Sodium Chlorate
(a) (b) (c) (d) (e)

140. Sodium Hydrosulfite
(a) (b) (c) (d) (e)

141. Sodium Hydroxide
(a) (b) (c) (d) (e)

142. Sodium Silicate
(a) (b) (c) (d) (e)

143. Sodium Sulfide
(a) (b) (c) (d) (e)

144. Sodium Sulfite
(a) (b) (c) (d)

145. Sulfur
(a) (b) (c) (d) (e)

146. Sulfur Dioxide
(a) (b) (c) (d) (e)

147. Sulfuric Acid
(a) (b) (c) (d) (e)

148. Synethetic Size
(a) (b) (c) (d) (e)

149. TSPP
(a) (b) (c) (d) (e)

150. Varnish
(a) (b) (c) (d) (e)

Varnish Remover
(list trade names)

151. _____
(a) (b) (c) (d) (e)

152. _____
(a) (b) (c) (d) (e)

153. _____
(a) (b) (c) (d) (e)

Washing Aids (list types)

154. _____
(a) (b) (c) (d) (e)

155. _____
(a) (b) (c) (d) (e)

156. _____
(a) (b) (c) (d) (e)

157. Zinc Hydrosulfite
(a) (b) (c) (d) (e)

Other

158. DuBois Extend 2
(a) (b) (c) (d) (e)

159. Interlube Block Grease Cylend #16
(a) (b) (c) (d) (e)

160. Muriatic Acid
(a) (b) (c) (d) (e)

161. 3M's FC807
(a) (b) (c) (d) (e)

162. Mobil Block Grease T
(a) (b) (c) (d) (e)

163. Nalco 19 balls
(a) (b) (c) (d) (e)

164. _____
(a) (b) (c) (d) (e)

SH 033991

Mill: Bryant Division Location: Kalamazoo, MI

IV. MANUFACTURING PROCESS AND INTERNAL POLLUTION CONTROL PRACTICES

A. General

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

B. Paper Mill

182. How many paper machines does mill have?

5

183. Give the number of paper machines the mill has which utilize savealls, or similar devices, for fiber recovery.

5

184. Give the number of paper machines the mill has which have savealls, or similar devices, that permit reuse of clarified water.

5

C. Additional Information

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

Mill: Bryant Division Location: Kalamazoo, MI

V. WATER USAGE AND EFFLUENT TREATMENT PRACTICES

Instructions for Completing Section V

Section V requests information on the mill's wastewater treatment practices. In Section VIII a general schematic of the effluent treatment system is requested. You have the option of providing any of the data requested in Section V on the schematic. If you do this, please indicate on the question(s) involved that the data is presented on the schematic.

A. Water Usage

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

B. Background Data

211. Indicate the method(s) of disposal of the mill wastewater.

* (a) Direct

* (b) Indirect

(c) Self-contained

(d) Other (please describe) _____

212. Please give the year in which the following portions of the mill's existing wastewater treatment system were started up.

	Year of Startup
a. Primary Treatment System	1954
b. Secondary Treatment System	

*C. Indirect Discharger (discharge to a POTW) please provide the following information:

215. Is raw wastewater pretreated externally prior to discharge to the POTW? (Pretreatment is considered to be any treatment device external from the mill production processes which is utilized prior to a primary and secondary treatment system, or prior to discharge by an indirect discharger to a POTW.)

(a) Yes

(b) No

*See note ahead of Page 11

SA 033993

Mill: Bryant Division Location: Kalamazoo, MI

216. Give the treatment process used by the POTW to which your mill discharges. (Include biological and physical-chemical treatment if applicable)

(a) Activated sludge

(b) Aerated lagoon

(c) Oxidation ditch

(d) Trickling filter

(e) None

(f) Other (indicate type) _____

219. Give the preliminary treatment method used, if any.

(a) Neutralization

(b) Screening (indicate type used) Comminutors

(c) Other (please describe) Grit Removal

221. Indicate the primary treatment method used, if applicable.

(a) Clarifier

(b) Sedimentation lagoon

(c) Mechanically cleaned sedimentation lagoon

(d) Other (please describe) _____

(e) Not applicable

225. Give the type of biological treatment used, if applicable.

(a) Storage oxidation basin

(b) Aerated Stabilization basin

(c) Activated sludge (air or oxygen)

(d) Other (please describe) _____

(e) Not applicable

SA 033994

Mill: Bryant Division Location: Kalamazoo, MI

* D. Direct Discharger please provide the following information:

228. Is wastewater discharge continuous or non-continuous (effluent stored and discharged when receiving water conditions allow) when production facilities are operating?

(a) Continuous

(b) Non-continuous - daily

(c) Non-continuous - seasonally/intermittent

E. Preliminary Treatment (Direct Discharger) NOT APPLICABLE

230. Give the preliminary treatment method used, if any.

(a) Neutralization

(b) Screening (indicate type used) _____

(c) Other (please describe) _____

F. Primary Treatment (Direct Discharger)

232. Indicate the method used for primary treatment.

(a) Clarifier

(b) Sedimentation lagoon

(c) Mechanically cleaned sedimentation lagoon

(d) Other (please describe) _____

G. Biological Treatment (Direct Discharger) NOT APPLICABLE

236. Give the type of biological treatment used.

(a) Storage oxidation basin

(b) Aerated stabilization basin

(c) Activated sludge (air or oxygen)

(d) Other (please describe) _____

*See note ahead of Page 11

Mill: Bryant Division Location: Kalamazoo, Mi

H. Secondary Solids Removal

237. If secondary clarification is used, what is the method used?

(a) Clarifier NOT APPLICABLE

(b) Reactor clarifier

(c) Settling basin

(d) Other (please indicate) _____

238. Is a holding pond utilized after secondary treatment? NOT APPLICABLE

(a) Yes

(b) No

I. Spray Irrigation

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

J. Sludge Handling and Disposal Underflow from Clarifier

240. Indicate the method used for sludge disposal.

(a) Lagooning For Dewatering

(b) Landfill Ultimate disposal lagoon solids

(c) Hog fuel boiler

(d) Other (please describe) _____

K. Foam Control

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

L. Cost Information

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

SA 033996

Mill: _____ Location: _____

M. Site Conditions and Availability of Land

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

N. Wastewater Characteristics

251-254. Give the (1976) wastewater loads indicated below:

	Indirect and Direct Dichargers Please Answer		Direct Discharger Only Please Answer	
	(251)	(252)	(253)	(254)
	Paper Mill	Total Raw Wastewater	Secondary Treatment System Effluent	Final Effluent
a. Flow, MGD				
(1) Average Day	____	____	____	____
(2) Maximum Day	____	____	____	____
(3) Maximum Month	____	____	____	____
b. BOD, lbs/day				
(1) Average Day	____	____	____	____
(2) Maximum Day	____	____	____	____
(3) Maximum Month	____	____	____	____
c. TSS, lbs/day				
(1) Average Day	____	____	____	____
(2) Maximum Day	____	____	____	____
(3) Maximum Month	____	____	____	____

IV. FUEL AND ENERGY

NO QUESTIONS FOR THIS SECTION ARE TO BE ANSWERED IN PART I.

VII. PRIORITY POLLUTANTS

See Next Page

VIII. PROCESS SCHEMATICS

NO QUESTIONS FOR THIS SECTION ARE TO BE ANSWERED IN PART I.

M. Site Conditions and Availability of Land

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

N. Wastewater Characteristics

251-254. Give the (1976) wastewater loads indicated below:

	Indirect and Direct Dischargers Please Answer		Direct Discharger* Only Please Answer	
	(251) Paper Mill	(252) Total Raw Wastewater	(254) Direct Final Effluent	(254) Indirect Final Effluent
a. Flow, MGD				
(1) Average Day	2.358	2.358	0.617	1.753
(2) Maximum Day	3.329	3.329	1.361	3.023
(3) Maximum Month	2.532	2.532	0.784	2.077
b. BOD, lbs/day				
(1) Average Day	4621	4621	421	1221
(2) Maximum Day	8210	8210	971	2560
(3) Maximum Month	4727	4727	487	1643
c. TSS, lbs/day				
(1) Average Day	19,224	19,224	90	357
(2) Maximum Day	42,758	42,758	326	2435
(3) Maximum Month	21,219	21,219	94	508

IV. FUEL AND ENERGY

NO QUESTIONS FOR THIS SECTION ARE TO BE ANSWERED IN PART I.

VII. PRIORITY POLLUTANTS

See Next Page

VIII. PROCESS SCHEMATICS

NO QUESTIONS FOR THIS SECTION ARE TO BE ANSWERED IN PART I.

*Please note since 253 is not applicable in our case but for reasons given elsewhere we are splitting 254 into direct and indirect figures.

Mill: Bryant Division Location: Kalamazoo, MI

VII. PRIORITY POLLUTANT COMPOUNDS

As per E. C. Jordan Co. letter of October 18, 1977, this section will be returned with Part II

Please fill in the following information for those priority pollutants which, to your knowledge, are in your raw water supply, or used, or generated in any of the processes in the mill (refer to the following pages for the priority pollutant list). Use the number shown to identify the compound.

It should be noted that many mills may be using quantities of the listed chemicals as additives, cleaning solution, or solvents which are purchased and referred to by a trade name. Please supply trade names of all proprietary type chemicals used in the mill.

Compound Number or Trade Name	Process Where Compound is Used or Generated	Describe Use		Sampling or Monitoring Program for Compound (Yes or No)
		Quantity	Frequency	

SA 033999

PRIORITY POLLUTANTS

1. *acenaphthene
2. *acrolein
3. *acrylonitrile
4. *benzene
5. *benzidine
6. *carbon tetrachloride (tetrachloromethane)

*CHLORINATED BENEZENES (other than dichlorobenzanes)

7. chlorobenezene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene

*CHLORINATED ETHANES

10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane

*CHLOROALKYL ETHERS

17. bis(chloromethyl) ether
18. bis(2-chloroethly) ether
19. 2-chloroethyl vinyl ether (mixed)

*CHLORINATED NAPHTALENE

20. 2-chloronaphthalene

*CHLORINATED PHENOLS (Other than those listed elsewhere; includes chlorinated cresols)

21. 2,4,6-trichlorophenol
22. parachlorometa cresol
23. *chloroform (trichloromethane)
24. *2-chlorophenol

*DICHLOROBENZENES

25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene

*DICHLOROBENZIDINE

28. 3,3'-dichlorobenzidine

*DICHLOROETHYLENES

29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. *2,4-dichlorophenol

*DICHLOROPROPANE AND DICHLOROPROPENE

32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. *2,4-dimethylphenol

*DINITROTOLUENE

35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. *1,2-diphenylhydrazine
38. *ethylbenzene
39. *fluoranthene

*Specific compounds and chemical classes as listed in the consent degree.

SQ 034000

PRIORITY POLLUTANTS (continued)

*HALOETHERS (other than those listed elsewhere)

40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl) ether
43. bis(2-chloroethoxy) methane

*HALOMETHANES (other than those listed elsewhere)

44. methylene chloride (dichloromethane)
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane
50. dichlorodifluoromethane
51. chlorodibromomethane
52. *hexachlorobutadiene
53. *hexachlorocyclopentadiene
54. *isophorone
55. *naphthalene
56. *nitrobenzene

*NITROPHENOLS

57. 2-nitrophenol
58. 4-nitrophenol
59. *2,4-dinitrophenol
60. 4,6-dinitro-o-cresol

*NITROSAMINES

61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. *pentachlorophenol
65. *phenol

*PHTHALATE ESTERS

66. bis(2-ethylhexyl) phthalate
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
70. diethyl phthalate

*POLYNUCLEAR AROMATIC HYDROCARBONS

72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthe)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluroene
81. phenathrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. indeno (1,2,3-cd)pyrene (2,3-o-phenylenepyrene)
84. pyrene
85. *tetrachloroethylene
86. *toluene
87. *trichloroethylene
88. *vinyl chloride (chloroethylene)

PESTICIDES AND METABOLITES

89. *aldrin
90. *dieldrin
91. *chlordane (technical mixture & metabolites)

*Specific compounds and chemical classes as listed in the consent degree

SR 034001

PRIORITY POLLUTANTS (continued)

***DDT AND METABOLITES**

92. 4,4'-DDT
93. 4,4'-DDE (p,p'-DDX)
94. 4,4'-DDD (p,p'-TDE)

***ENDOSULFAN AND METABOLITES**

95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate

***ENDRIN AND METABOLIES**

98. endrin
99. endrin aldehyde

***HEPTACHLOR AND METABOLITES**

100. heptachlor
101. heptachlor epoxide

***HEXACHLOROCYCLOHEXANE (all isomers)**

102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta

***POLYCHLORINATED BIPHENYLS (PCB's)**

106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)

113. *Toxaphene
114. *Antimony (Total)
115. *Arsenic (Total)
116. *Asbestos (Fibrous)
117. *Beryllium (Total)
118. *Cadmium (Total)
119. *Chromium (Total)
120. *Copper (Total)
121. *Cyanide (Total)
122. *Lead (Total)
123. *Mercury (Total)
124. *Nickel (Total)
125. *Selenium (Total)
126. *Silver (Total)
127. *Thallium (Total)
128. *Zinc (Total
129. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

ADDITIONAL COMPOUNDS

130. Abietic Acid
131. Deyhydroabietic Acid
132. Isopimaric Acid
133. Pimaric Acid
134. Oleic Acid
135. Linoleic Acid
136. Linolenic Acid
137. 9, 10 - Epoxystearic Acid
138. 9, 10 - Dichlorostearic Acid
139. Monochlorodehydroabietic Acid
140. Dichlorodehydroabietic Acid
141. 3, 4, 5 - Trichloroguaiacol
142. Tetrachloroguaiacol

SA 034002

PART I

CONFIDENTIALITY CLAIMED FOR THE FOLLOWING

Question Number	Question Number	Question Number	Question Number	Question Number	Question Number	Question Number
2A →	3	133				
2A →	8	137				
B →	13 (a)(b)	158				
27		159				
31		161				
30		251				
58		252				
59		254 a thru c				
60						
66(A)(B)						
65						
75						
76						
84						
92						
106						
109						
117						
118						
119						
120						
123						
124						
127						

SA 034003

ENVIRONMENTAL PROTECTION AGENCY
SURVEY FORM
PULP, PAPER, AND PAPERBOARD INDUSTRY

NON-INTEGRATED MILLS
PART II

I. MILL BACKGROUND DATA

A. Mill & Division Name: Bryant Division - Allied Paper, Inc.

Address: 2030 Portage St., Kalamazoo, MI ZIP: 49001

Telephone: 616 / 345-7131

Corporate Affiliation (if applicable) SCM Corporation

Contacts and Title: (Use an asterisk next to the responsible personnel completing the survey form)

E. J. Gilman	Vice President, Operations
*U. G. Stoeffler	Manager, Process Development

B. Age of Mill

1-2. DELETED - ANSWERED IN PART I

II. PRODUCTION INFORMATION

3-23. DELETED - ANSWERED IN PART I

III. PROCESS RAW MATERIALS

24-164. DELETED - ANSWERED IN PART I

000043

SA 030370

SA00030370

Mill: Bryant Location: Kalamazoo, MI

IV. MANUFACTURING PROCESS AND INTERNAL POLLUTION CONTROL PRACTICES

A. General

165. Give the typical production days per year 260

166. High level alarms - do chemical and stock tanks have operable high level alarms to prevent spills?

(a) Yes

(b) No

(c) To the extent possible

Explanation (if needed) On recent installations

167. pH or conductivity monitor of internal sewers - Do sewers have such devices to detect or divert spills?

(a) Yes

(b) No

(c) To the extent possible

Explanation (if needed)

168-181. Is the cooling water collected and reused from the following locations: Indicate answer using one of the following responses: (a) Yes; (b) No; (c) Seasonal; (d) To Extent Possible; (e) Not Applicable.

	a	b	c	d	e
168. Air Compressor Cooling Water		x			
169. Dryer Drainage Condensate Cooling				x	
170. Lube Oil Cooling		x			
171. Calendar Cooling Heat Exchangers					x
172. Rewinder Brake Cooling				x	

SA 030371

SA00030371

Mill: Bryant Location: Kalamazoo, MI

(a) Yes; (b) No; (c) Seasonal; (d) To Extent Possible; (e) Not Applicable

	a	b	c	d	e
173. Paper Machine Clutch Cooling					x
174. Cooling in Power Plant		x			
175. Feed Water Pump Bearings		x			
176. Power Plant I.D. Fan Bearings					x
177. Other Bearing Cooling		x			
178. Refiner Cooling		x			
179. Motor Control Center Cooling					x
180. Water Chiller					x
181. Air Conditioning					x

B. Paper Mill

182-184. DELETED - ANSWERED IN PART I

SA 030372

SA00030372

185-193. Please fill in the appropriate answers for each of your mill's paper machines. If you feel any answers require an explanation to assist in the proper analysis of each of the questions shown, please attach a sheet with the explanation(s). Be sure to correctly identify which question and which paper machine the explanation is for.

	Paper Machine																	
	#1		#2		#3		#4		#5		#6		#7		#8		#9	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
185. Is felt vacuum pump water reused?										X		X		X		X		X
186. White water showers - Are White water showers used on the paper machine for such purposes as wire cleaning or knock off showers?									X		X		X		X		X	
187. Reuse press effluent - Is the press effluent reused?										X		X		X		X		X
188. White water for vacuum pump sealing - Is white water used for vacuum pump sealing?									X		X		X		X		X	
189. White water storage for upsets and pulper dilution - Is excess white water, overflows from the main white water tank or the cloudy side of the saveall saved in a white water storage tank of sufficient size for charging and dilution at the pulpers?									X		X		X		X		X	
190. Does the mill have either four stages of cleaning or three stages of cleaning with elutriation in the paper mill?									X		X		X		X		X	
191. High pressure showers - Are high pressure showers (above 250 psig) used on the paper machine for wire cleaning?										X		X		X		X		X

SA00030373

	Paper Machine																			
	#1		#2		#3		#4		#5		#6		#7		#8		#9		#10	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
*192. High pressure showers - Are high pressure showers (above 250 psig) used on the paper machine for felt cleaning?	—	—	—	—	—	—	—	—	—	X	—	X	—	X	—	X	—	—	—	—
**193. Is individual machine slush broke storall adequate to contain total machine production of stock (at couch) for a 30 minute period?	—	—	—	—	—	—	—	—	—	X	—	X	—	X	—	X	—	X	—	—

* No felt showers

** Couch pit slush broke is continuously pumped to fiber recovery system so 30 min. storage is not needed.

SA00030374

Mill: Bryant Location: Kalamazoo, MI

194. Does the mill have a stock spill collection system, prior to external treatment facilities?

(a) Yes

(b) No

(c) Partial

195. If the answer to the preceding question is (a), describe the collection system's function.

(a) Collected and discharged to the sewer at a controlled rate

(b) Collected and reused in the process

(c) Other (please describe) _____

196. Give the frequency of waste significant grade changes; also, if possible, give the stock quantity sewered.

10 @ 600# each

197. Is the mill central storage of white water (a) and slush broke (b) adequate with regard to effluent discharge?

a. White Water

(a) Yes

(b) No

(c) To the extent possible

(Explanation, if needed) _____

b. Slush Broke

(a) Yes

(b) No

(c) To the extent possible

(Explanation, if needed) _____

SH 030375

SA00030375

Mill: Bryant Location: Kalamazoo, MI

198. Are special provisions made for spills, screen rejects, and excess materials from coating or sizing systems?

(a) Yes

(b) No

(c) Limited

199. Does the mill employ organic solvent coating or saturating operations?

(a) Yes

(b) No

200. If yes, please give the type and quantities (lbs/day) of organic solvent used.

_____

_____

201. Give the average daily organic solvent coated or saturated paper produced.

_____ tons/day

SA 030376

SA00030376

Mill: Bryant Location: Kalamazoo, MI

202. Please indicate effluent from the combined papermachine facilities as follows: (i.e., total flow from all machines)

Waste Source	Volume GPM		Suspended Solids (if applicable) lbs/day
a. Centricleaner and machine screen rejects	80		9724
b. Couch pit, seal box, and any other unclarified whitewater overflows	very little		very little
c. Thick stock spills, dumps, washups from stock preparation area and machine	very little	gal/day	very little
d. Excess clarified whitewater	749		3,395
e. Cloudy water from vacuum systems, or pump sealing applications	314		5,042
f. Clear water discharges i.e., cooling services, condensate, other non-process services	268		0
g. Other effluent sources not included above	226		3,060
h. Total papermill effluent	1,637		21,219

i. Is (f) discharged via process sewer or separately? (Circle answer)

(YES) NO

"Yes" answer means (f) discharged via process sewer

Additional Information

203. Does the mill have a program for disposal of old electrical transformers?

(a) Yes

(b) No

204. Please give the number of people employed at your mill. 344

SA 030377

SA00030377

Mill: Bryant Location: Kalamazoo, MI

V. WATER USAGE AND EFFLUENT TREATMENT PRACTICES

Instructions for Completing Section V

Section V requests information on the mill's wastewater treatment practices. In Section VIII a general schematic of the effluent treatment system is requested. You have the option of providing any of the data requested in Section V on the schematic. If you do this, please indicate on the question(s) involved that the data is presented on the schematic.

A. Water Usage

205. Indicate the source and amount of process water.

(a) Surface (i.e., river, lake or reservoir) 2.570 MGD

(b) Groundwater _____ MGD

(c) Other (please describe) _____ _____ MGD

206. Does the quality of the raw water limit the reuse of water in this mill?

(a) Yes - explain _____

(b) No

207. Indicate the source and amount of the mill's cooling water.

(a) Surface 1.083 MGD

(b) Groundwater _____ MGD

(c) Other (please describe) _____ _____ MGD

208. Indicate the source and amount of the mill's boiler feed water.

(a) Surface 0.10 MGD

(b) Groundwater _____ MGD

(c) Other (please describe) _____ _____ MGD

SA 030378

SA00030378

Mill: Bryant Location: Kalamazoo, MI

209. Describe treatment used for boiler feed water conditioning.

Softner is the hot lime, soda ash, caustic and phosphate type.

210. Give the disposal method now employed for boiler blowdown water.

(a) Sewered to treatment plant

(b) Directly discharged

(c) Directly discharged with pH adjustment

(d) Directly discharged after cooling

(e) Other (please describe) _____

B. Background Data

211-212. DELETED - ANSWERED IN PART I

213. How is cooling water disposed?

(a) Separate discharge to receiving stream.

(b) Combined with process waters before treatment.

(c) Combined with treated process waters.

(d) Recycled.

C. Indirect Discharger please provide the following information:

* 214. Name and location of POTW which handles your wastewater.

Kalamazoo Municipal Waste Treatment plant

215-216. DELETED - ANSWERED IN PART I

217. Are there specific pretreatment requirements of limits upon pollutant parameters imposed by the POTW system to which you discharge?

(a) Yes

(b) No

* As noted in Part I, part of effluent from Bryant Clarifier is discharged to a POTW and part to the influent of Monarch Clarifier as shown in "[illegible]" Process Schematic. However, for this portion of the survey the Bryant Division is considered an indirect discharger.

SA 030379

SA00030379

Mill: Bryant Location: Kalamazoo, MI

218. If the answer to the preceding question was (a), please list the specific pretreatment requirements or pollutant parameter limits imposed on your mill by the POTW.

Primary settling

219. DELETED - ANSWERED IN PART I

220. If neutralization is practiced, fill in the following. N.A.

Chemical used _____

221. DELETED - ANSWERED IN PART I

222. Are any chemicals or other settling aids added to the primary treatment units?

(a) Yes

(b) No

(c) To the extent necessary (intermittent)

223. Please show the wastewater streams which enter the secondary treatment system (if applicable). N.A.

	Process Source or Sewer No.*		Flow, MGD	BOD, lb/D	TSS, lb/D
a.	Design Values	Average Day			
		Maximum Day			
		Maximum Month			
b.	Primary Treatment Effluent	Average Day			
		Maximum Day			
		Maximum Month			
c.	Other	Average Day			
	_____	Maximum Day			
		Maximum Month			

*Process source or sewer number should be keyed to the mill process and wastewater treatment schematics requested in Section VIII.

SA 030380

SA00030380

Mill: Bryant Location: Kalamazoo, MI

224. Give the normal pH of the wastewater at the influent to the secondary treatment system. N.A.

(a) 4-6

(b) 6-8

(c) 8-10

225. DELETED - ANSWERED IN PART I

D. Direct Discharger please provide the following information: N.A.

226. Name of effluent discharge receiving water

_____

227. Enclose a copy of current or proposed NPDES effluent discharge limits. N.A.

228. DELETED - ANSWERED IN PART I

229. If wastewater discharge is seasonal or intermittant non-continuous, approximately how many days out of the year do you discharge to the receiving water. N.A.

(a) Less than 30	(f) 211-240
(b) 31-90	(g) 241-270
(c) 91-120	(h) 271-300
(d) 121-180	(i) 301-330
(e) 181-210	(j) 331-360

E. Preliminary Treatment

230. DELETED - ANSWERED IN PART I

231. If neutralization is practiced, fill in the following: N.A.

Chemical used _____

SA 03038

SA00030381

Mill: Bryant Location: Kalamazoo, MI

F. Primary Treatment

232. DELETED - ANSWERED IN PART I

233. Are any chemicals or other settling aids added to the primary treatment units?

(a) Yes

(b) No

(c) To the extent necessary (intermittent).

G. Biological Treatment N.A.

234. Provide the following information for the biological treatment system (if applicable).

	Process Source or Sewer No.*		Flow, MGD	BOD, lb/D	TSS, lb/D
	Design Influent Values	Average Day			
		Maximum Day			
		Maximum Month			
b.	Primary Treatment Effluent	Average Day			
		Maximum Day			
		Maximum Month			

Other Wastewater Streams Which Enter the Biological Treatment Systems Without Primary Treatment

c.		Average Day			
		Maximum Day			
		Maximum Month			
d.		Average Day			
		Maximum Day			
		Maximum Month			

*Process source or sewer number should be keyed to the mill process and wastewater treatment schematics requested in Section VIII.

SA 03038

SA00030382

Mill: Bryant Location: Kalamazoo, MI

235. Give the normal pH of the wastewater at the influent to the secondary treatment system. N.A.

(a) 4-6

(b) 6-8

(c) 8-10

236. DELETED - ANSWERED IN PART I

H. Secondary Solids Removal

237-238. DELETED - ANSWERED IN PART I

I. Spray Irrigation

239. Is treated wastewater used for irrigation? N.A.

(a) Yes

(b) No

(c) Partial

J. Sludge Handling and Disposal

240. DELETED - ANSWERED IN PART I

241. Give the percent solids of the sludge after dewatering and prior to disposal.

(a) 5-10%

(b) 10-20%

(c) 20-30%

(d) 30-40%

(e) above 40%

242. Describe any leachate management practices performed at the mill for sludges which are disposed of on land.

Nature of sludge seals the lagoon bottom and sides area. Therefore, no leachate management is necessary.

SA 0303

SA00030383

Mill: Bryant Location: Kalamazoo, MI

K. **Foam Control** - (Wastewater treatment system only)

243. Does the mill use foam control measures?

(a) Chemical

(b) Physical Methods

(c) None

(d) Other - explain _____

SA 0303F

SA00030384

Mill: Bryant Location: Kalamazoo, MI

L. Cost Information

244. Provide cost data indicated for effluent treatment system in 1976 dollars. Use the cost multiplier factors, which follow, to convert to 1976 dollars.

		Total Capital Cost	Annual Operation and Maintenance Cost*
a.	Internal control devoted to effluent waste load reduction.	$678,300	$86,500
b.	External Treatment System		$74,050
c.	Primary Treatment	$420,800	
d.	Secondary Treatment	$ 91,000	

Construction Cost Multipliers
to Convert Capital Cost to 1976 Dollars

1956 =	2.535	1963 =	2.186	1969 =	1.794
1957 =	2.380	1964 =	2.161	1970 =	1.689
1958 =	2.325	1965 =	2.124	1971 =	1.564
1959 =	2.254	1966 =	2.051	1972 =	1.485
1960 =	2.220	1967 =	1.978	1973 =	1.317
1961 =	2.220	1968 =	1.884	1974 =	1.242
1962 =	2.207			1975 =	1.100

*Factors to be considered in Annual Operation and Maintenance Costs (O & M Costs).

1. Manpower - both operators and maintenance personnel
2. Contracted services
3. Energy Cost
4. Trucks for hauling
5. Nutrients
6. Leased equipment
7. Disposal costs
8. Sludge handling
9. Sampling and analysis
10. Equipment replacement (except major capital)

Exclude Depreciation

* Computer-TOC Analyzer Control System installed in 1977 as applies to Bryant Division.

SA 030385

SA00030385

Mill: Bryant Location: Kalamazoo, MI

245. For mills which discharge to a POTW, please give the annual user fee with a breakdown for capital cost recovery and operation and maintenance costs.

a. Capital Cost Recovery(if available) N.A.

b. Operation and Maintenance (if available) N.A.

c. Total Annual User Fee $ 109,237.97

*July-Dec. 31, 1977 $ 92,023.26

246. Please give the basis used by the POTW to determine the mill's user fee.

(a) Flow only

(b) BOD only

(c) TSS only

(d) Combination of parameters (please indicate) _____

(e) Unknown

M. Site Conditions and Availability of Land

247. Is there sufficient land for expansion of your wastewater treatment system for BATEA?

(a) Yes

(b) No

(c) Unknown

248. Can the mill purchase land from adjoining property owners for possible expansion of the wastewater treatment system?

(a) Yes

(b) No

(c) Unknown

* 1977 user cost to reflect additional cost with reduced BOD limitations as of July 1, 1977.

SA 030386

SA00030386

Mill: Bryant Location: Kalamazoo, MI

249. Are the soil conditions in the land available for future expansion of such a quality as to require special construction methods or special facility equipment (i.e., ledge, water table and liners needed for basins)?

(a) Yes

(b) No

(c) Unknown

250. Miscellaneous Discharges - Indicate any wastewater discharges not described in Section V which do not flow to the wastewater treatment system.

Process water sand filter's backwash water

N. Wastewater Characteristics

251-254. DELETED - ANSWERED IN PART I

255. Was the analysis procedure used for BOD measurement in accord with the method presented in Standard Methods for the Examination of Water and Wastewater?

(a) 13th Edition

(b) 14th Edition

(c) No (please describe other method used) NCASI

256. Is a glucose-glutamic acid BOD standard analyzed?

(a) Yes

(b) No as applies to 1976 analysis procedures

SA 030387

SA00030387

E1

AMERICAN PAPER INSTITUTE
RAW MATERIALS AND ENERGY DIVISION
260 Madison Avenue, New York, N.Y. 10016

CONFIDENTIAL
MONTHLY FUEL AND ENERGY REPORT

Company: _____

Mill Location: _____

Month, Year: _____
(If this is a "period" mill, the period reported is from _____ through _____.)
mo./day mo./day

Mill Reference NO.: _____ FOR API USE ONLY
Region: _____

I. Monthly Fuel and Energy Consumption Data

For each energy source used in the month, please enter to the nearest tenth information in the way you monitor it most accurately. For example, in the case of fuel oil, you would probably enter thousands of barrels. But in the case of bark, you would probably enter Billion BTU's as fired--obtained by applying the bark boiler's rated or estimated efficiency to its metered steam output. Then apply the BTU conversion factor you believe to be most accurate for your operation to compute either Billions of BTU's as in the first case, or weight of fuel at the specified moisture content as in the second case. (See list of average BTU values of nominated fuels, over.) Limit reporting to energy used within the mill fence line, thereby excluding energy used in wood harvesting, transportation and converting operations.

FUEL	UNITS	ACTUAL USE	CONVERSION FACTOR	BILLION BTU's as FIRED
Purchased Fossil Fuel & Energy				
1. Purchased Electricity	Millions KWH		X 3.4 =	
2. Purchased Steam	Millions lbs.		X =	
3. Coal	Thousands Short Tons		X =	
4. Residual Fuel Oil (#5,6)	Thousands 42 Gal. Bbls.		X =	
5. Distillate Fuel Oil (#2)	Thousands 42 Gal. Bbls.		X =	
6. Liquid Propane Gas (L.P.G.)	Thousands Gallons		X =	
7. Natural Gas	Millions Cu. Ft.		X =	
8. Other (specify)			X =	
9. Other (specify)			X =	
10. LESS ENERGY SOLD:				
SUB TOTAL A (1 to 9 less 10:)				
Self Generated and Waste Fuels				
11. Hogged Fuel: (Wood & Bark)	Thous. Short Tons (50% moisture content)		X =	
12. Bark: (Enter separately, if available, bark obtained in debarking of pulpwood)	Thous. Short Tons (50% moisture content)		X =	
13. Municipal Waste	Thous. Short Tons (50% moisture content)		X =	
14. Spent Liquor (oven dry basis)	Thousands Short Tons of Solids		X =	
15. Self-Generated Hydroelectric Power	Millions KWH		X 3.4 =	
16. Other (specify)			X =	
17. Other (specify			X =	
SUB TOTAL B (11 to 17):				
GRAND TOTAL C (A+B):				

Total In Plant Electric Generation: _____ Million KWH
(Calculate separately from above totals)

II. Monthly Production Data

Please enter production for the month in thousands of short tons, to the nearest tenth. Mills which use both their own and purchased pulp will enter separate data for "Integrated Paper and Paperboard" and "Nonintegrated Paper and Paperboard."

1. Pulp (dried and wet lap): Report dried and wet lap pulp (reported on a dried basis).

2. Integrated Paper and Paperboard: Report primary product (excluding converted products) manufactured from on-site pulp production, as normally measured.

3. Nonintegrated Paper and Paperboard: Report primary product (excluding converted products) manufactured from off-site pulp production and/or waste paper, as normally measured.

(thousand short tons)

1. Pulp (dried and wet lap on dried basis): _____

2. Integrated Paper & Paperboard: _____

3. Nonintegrated Paper & Paperboard: _____

4. TOTAL PRODUCTION [D]: _____

III. Please compute millions of BTU's used per ton of output for both "Subtotal BTU's from Purchased Fossil Fuel and Energy" and "Grand Total BTU's."

1. Purchased Energy Per Ton

$$\frac{\text{Subtotal } [A]:\ \_\_\_\_\_}{\text{Total } [D]} = \_\_\_\_\_ \text{ million BTU's/ton}$$

2. Total Energy Per Ton

$$\frac{\text{Grand Total } [C]:\ \_\_\_\_\_}{\text{Total } [D]:} = \_\_\_\_\_ \text{ million BTU's/ton}$$

IV. Explanation of month to month changes in energy use:

1) If the mill's energy use per unit of output (either purchased and/or total) for this month varied 25% or more from that in the previous month, please explain:

_____

_____

2) Has this mill put into operation during this month additional equipment for effluent and emission control?

YES_____ NO_____

If yes, what net additional energy will this additional equipment require in a full month at current operating rates?

Steam:_____Million lbs. Electricity:_____Millions KWH (Calculate on basis of additional horsepower to be used)

V. The average temperature of incoming water for the month was_____degrees fahrenheit.

Suggested Average Conversion Factors To Obtain Billion BTU's (Question I)

Purchased Steam (No condensate return)	1.3	Hogged Fuel	7.7 (50% moisture content)
Purchased Steam (Condensate return)	1.1	Bark	9.0 (50% moisture content)
Coal	26.2	Spent Liquor	13.4
Residual Fuel Oil	6.3		
Distillate Fuel Oil	6.0		
L.P.G.	0.092		
Natural Gas	1.03		

Please return by the 21st of the following month to:
American Paper Institute
Raw Materials and Energy Division
260 Madison Avenue
New York, N.Y. 10016
Tel. (212) 883-8087

Name: _____

Signature: _____

Telephone. ( ) _____

Date: _____

JKO
June 1976

Mill: Bryant Location: Kalamazoo, MI

257. If the answer to the preceding question was (a), please indicate the normal frequency of the analysis. N.A.

(a) Daily

(b) Weekly

(c) Monthly

(d) Quarterly

(e) Semi-annual

258. Please indicate the average percent difference found between the BOD determinations and the glucose-glutamic acid BOD standard. N.A.

(a) 0-5%

(b) 5-10%

(c) 10-15%

(d) 15-20%

(e) Over 20%

259. Indicate the analysis procedure used for TSS determination at the mill.

(a) Standard Methods for the Examination of Water and Wastewater, 13th and/or 14th Edition.

(b) EPA analysis procedure adopted on October 16, 1973, and any subsequent amendments.

(c) Other (please describe) Same as (a) with a modification of filtering media

SA 030390

SA00030390

Mill: Bryant Location: Kalamazoo, MI

VI. FUEL AND ENERGY

A copy of the API "Monthly Fuel and Energy Report" has been included in this section to assist the mill in calculating (if information is not already available) the answer(s) to the questions asked. The API sheets should be used as a guide for computation only, do not return the pages with the questionnaire.

260. Give the total purchased energy (fossil fuel, electricity, steam, etc.) as equivalent millions BTU/ton of product (Items 1 to 9, less 10 from API forms).

26.6

261. Give the energy used for external treatment operations as equivalent KWHr/ton of product.

None

SA 030391

SA00030391

Mill: Bryant Location: Kalamazoo, MI

VIII. PROCESS SCHEMATICS

Attach separate general block diagrams for the three items listed below.

A. Water Treatment (if applicable) - Provide a general block diagram showing the water treatment system used, chemical application points, average flow, and disposal method for backwash water. If the mill has a raw water analysis available please attach a copy.

B. Manufacturing Process Schematic - Provide a general schematic of the total mill process to include water balance and all process wastewater streams. (See note at start of Section V.) Wastewater streams should be cross referenced to the effluent treatment system schematic.

C. Effluent Treatment System - Provide a general schematic of the effluent treatment system. Please key the diagram to the manufacturing process block diagram so that the point of influent to the treatment system for individual process sewers can be determined. Also show all chemical application points; chemicals used; flow monitoring and sampling points; average flow; size or area, volume, and number of each treatment system component; sludge recycle and volume; and sludge dewatering/thickening system.

Additional information on the mill's wastewater treatment system is also needed to complete the data request. Please provide answers to the following questions which pertain to your wastewater treatment system. For questions which do not apply, indicate by writing N/A (not applicable) on the space provided for the answer.

Primary Treatment

262. Give the following primary clarifier overflow rates:

a. Design 764 gpd/ft^2 at 6.000 MGD

b. Current 322 gpd/ft^2 at 2.532 MGD

SA 030392

SA00030392

Mill: Bryant Location: Kalamazoo, MI

Biological System N.A.

263-268. For the biological system employed, please give answers to the appropriate questions listed below:

	System	Question	Answer	
263.	Aerated Stabilization Basin	a) Volume of the aeration zone	_____	Mil. Gal.
		b) Connected horsepower for aeration	_____	
264.	Activated Sludge	a) Volume of the aeration zone	_____	Mil. Gal.
		b) Connected horsepower for aeration	_____	
		c) MLSS (Mixed Liquor Suspended Solids)	_____	
265.	Trickling Filer	a) Volume of media	_____	
		b) Surface area of filter	_____	ft^2
266.	RBC	a) Surface area of RBC	_____	ft^2
267.	Post Storage	a) Volume of storage	_____	Mil. Gal.

268. If nutrient addition is used, please give the average BOD:N:P ratio.

BOD:N:P ___:_:_

Secondary Solids Removal N.A.

269. Give the secondary clarifier overflow rates:

a. Design _____ gpd/ft^2 at _____ MGD

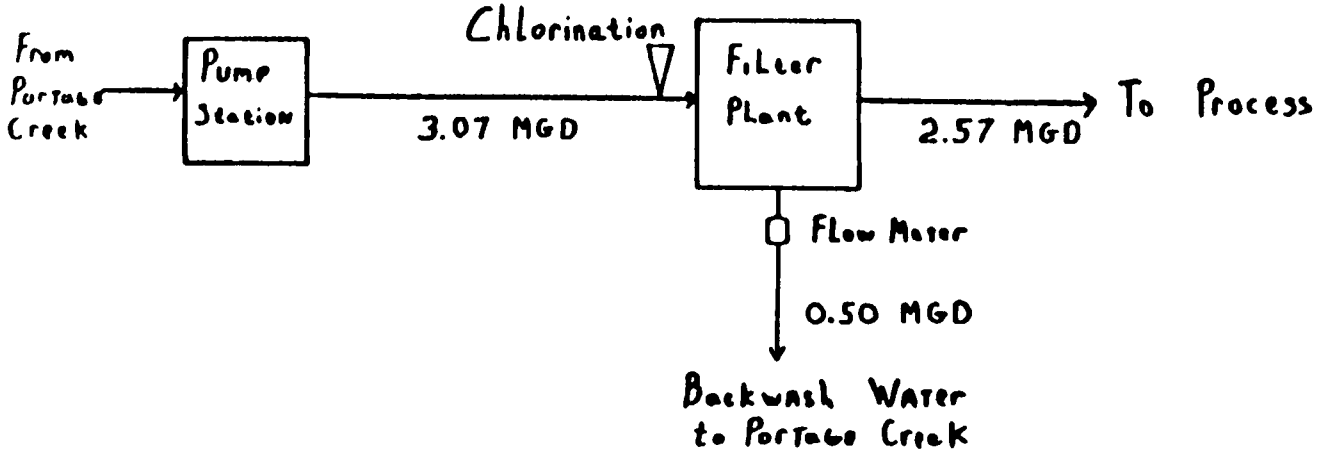
b. Current _____ gpd/ft^2 at _____ MGD

SA 030393

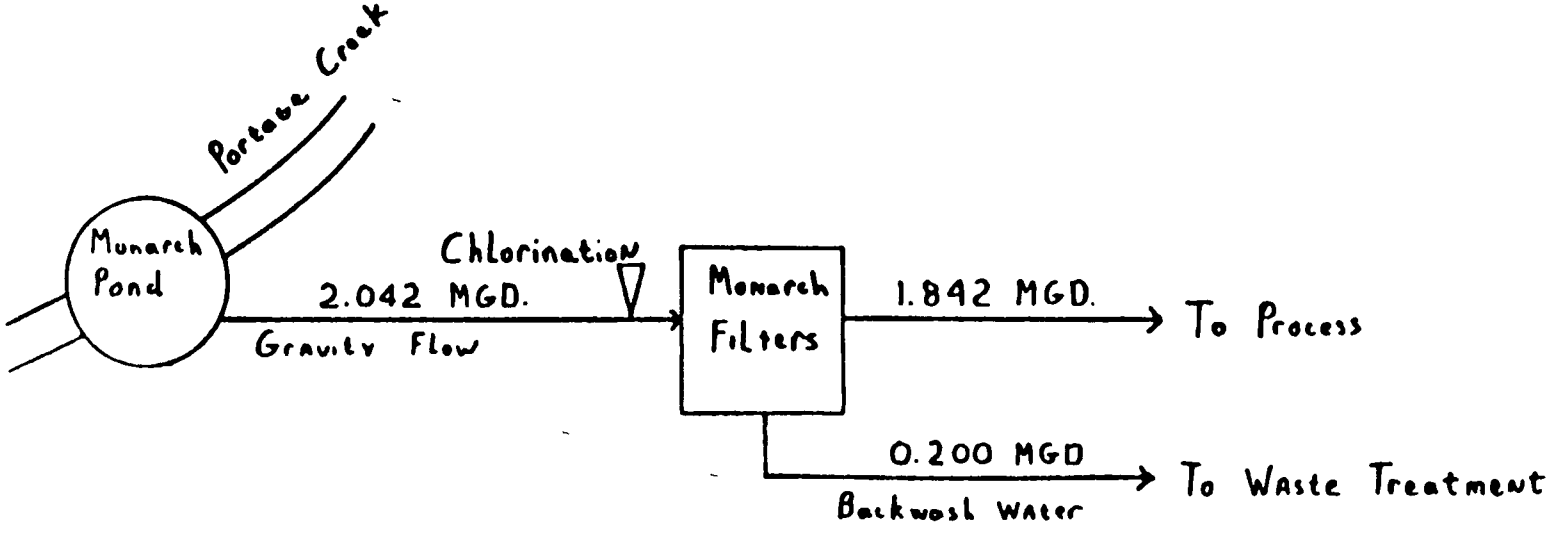
SA00030393

ALLIED'S WATER TREATMENT FLOW SCHEMATIC

Bryant's System

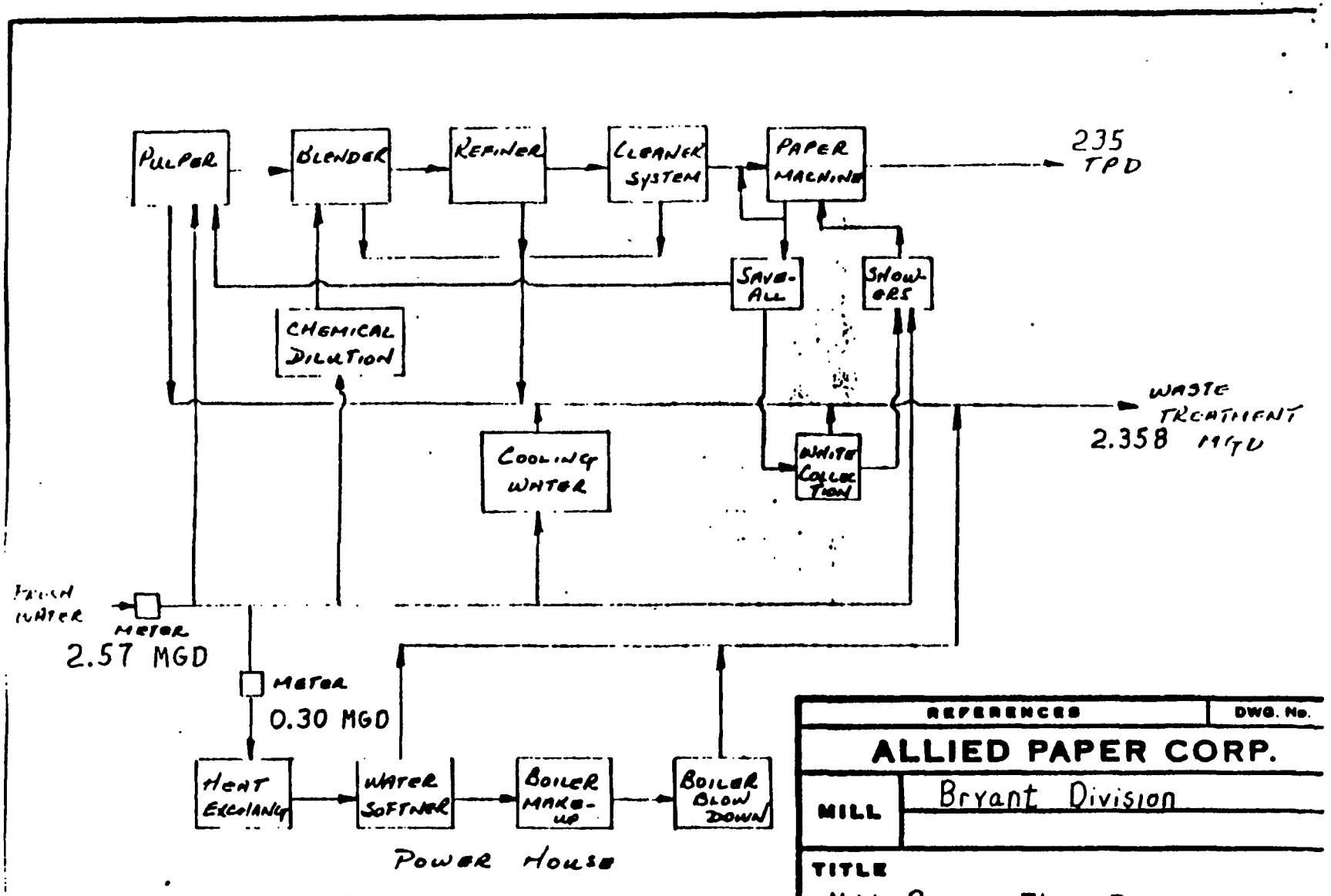


Monarch's System



MLS

SA00030394
SH 030394



REFERENCES	DWG. No.

ALLIED PAPER CORP.

MILL: Bryant Division

TITLE: Mill Process Flow Diagram

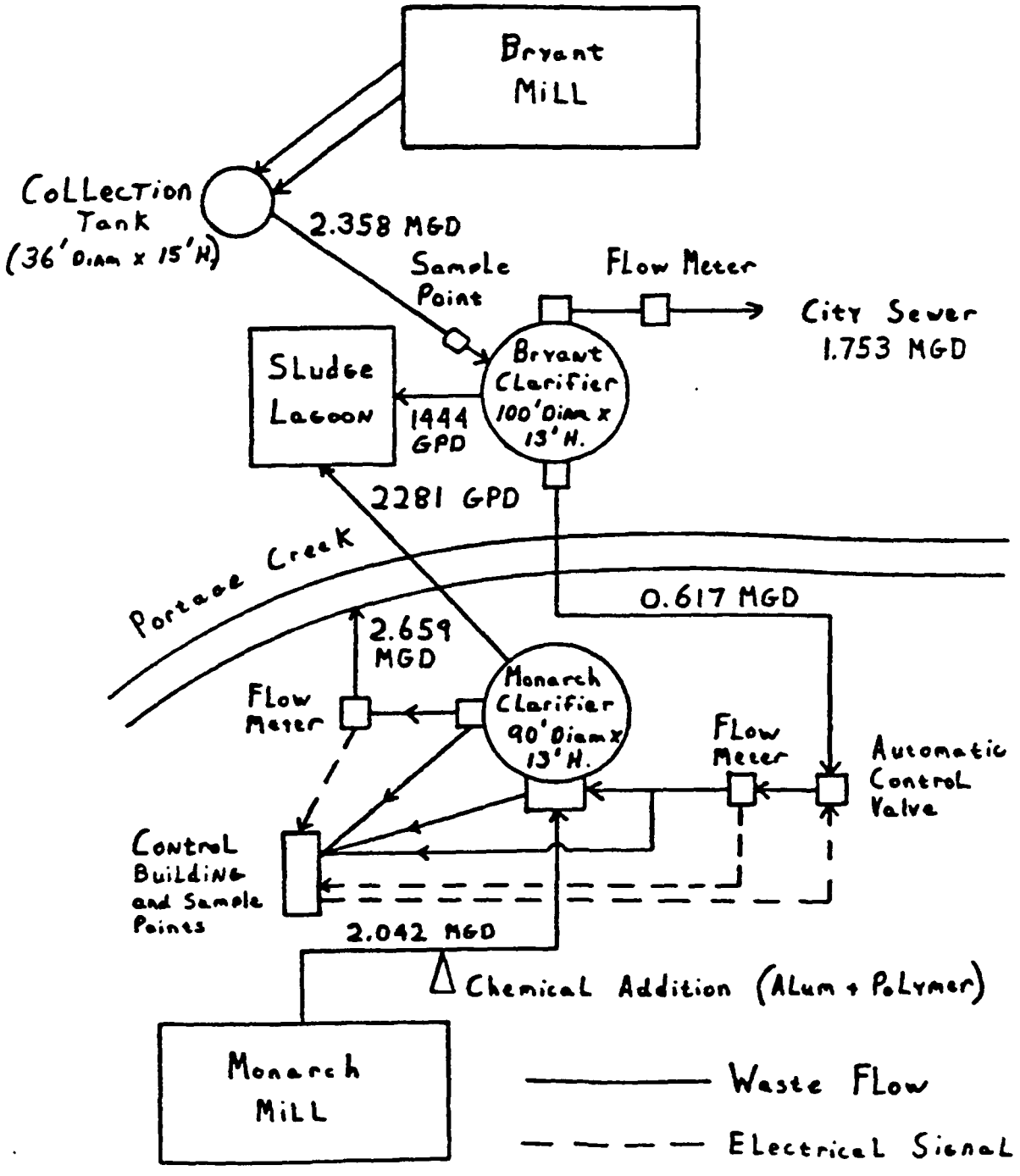
REVISIONS	

	NO	DAY	YR.
SCALE			
DRAWN			
TRACED			
CHECKED			
CHECKED			
APPROVED			

DWG. No.

SA00030395

ALLIED'S WASTE TREATMENT FLOW SCHEMATIC



☆ ALL Flow Figures Are For The Period of July 1, 1997 to Oct. 1, 1977.

Mill: Bryant Location: Kalamazoo, MI

VII. PRIORITY POLLUTANT COMPOUNDS

Please fill in the following information for those priority pollutants which, to your knowledge, are in your raw water supply, or used, or generated in any of the processes in the mill (refer to the following pages for the priority pollutant list). Use the number shown to identify the compound.

It should be noted that many mills may be using quantities of the listed chemicals as additives, cleaning solution, or solvents which are purchased and referred to by a trade name. Please supply trade names of all proprietary type chemicals used in the mill.

Compound Number or Trade Name	Process Where Compound is Used or Generated	Describe Use		Sampling or Monitoring Program for Compound (Yes or No)
		Quantity	Frequency	
Allied Paper, Inc. effluent has not been analyzed for the Priority Pollutants, except PCB and Mercury, listed on the following pages. Therefore, there is no available data on the quantity, frequency, sampling or monitoring program for any compounds. PCB and Mercury analyses on random samples indicated trace amounts.				
In addition Allied has requested all their suppliers of process raw materials to indicate if their material(s) contain any of the priority pollutants.				

SA 030397

SA00030397

PART II

CONFIDENTIALITY CLAIMED FOR THE FOLLOWING

Question Number	Question Number	Question Number	Question Number	Question Number	Question Number	Question Number
166	194					
167	196					
168	197					
169	198					
170	199					
171	202					
172	213					
173	233					
174	242					
175	255	247				
176	256	248				
177	257					
179	258					
180	259					
181	260					
185	261					
186	250					
187	VIII Schematics					
188						
189						
190						
191						
192						
193						

SA 030398

SA00030398

DISCLOSURE OF INFORMATION TO NCASI

As a result of an agreement between the Agency and NCASI, information gathered through this survey form can be made available to the NCASI if the mill chooses to do so. The following items are provided for you to indicate your mill's course of action in this matter: (It should be noted that the original of this survey form must be sent to the Agency's contractor and that a copy must be made if you choose to send information to the NCASI).

1. A completed copy of this survey, except for the deletions indicated below (is) (is not) being transmitted directly to the staff of the National Council of the Paper Industry for Air & Stream Improvement Inc. (NCASI).

   The following items of information or data were deleted from the copy of the survey transmitted to NCASI (items selected on the basis of a claim of confidentially, even ~~as to NCASI~~, are indicated by an *):

   _____

   _____

   _____

   _____

2. The respondent (does) (does not) consent to the disclosure of any other information collected by EPA or its contractor concerning your facility, including any information or reference code needed to identify the facility (ies) covered by this survey from subsequent EPA contractor verification surveys or other studies.

   The following items or types of information or data subsequently collected by EPA or its contractor shall not be disclosed to NCASI.

   _____

   _____

   _____

   _____

NAME: U. G. Stoeffler TITLE: Manager Process Development

000493

SA 033976

Mill: Bryant Location: Kalamazoo, MI

218. If the answer to the preceding question was (a), please list the specific pretreatment requirements or pollutant parameter limits imposed on your mill by the POTW.

Primary settling

219. DELETED - ANSWERED IN PART I

220. If neutralization is practiced, fill in the following. N.A.

Chemical used _____

221. DELETED - ANSWERED IN PART I

222. Are any chemicals or other settling aids added to the primary treatment units?

(a) Yes

(b) No

(c) To the extent necessary (intermittent)

223. Please show the wastewater streams which enter the secondary treatment system (if applicable). N.A.

	Process Source or Sewer No.*		Flow, MGD	BOD, lb/D	TSS, lb/D
a.	Design Values	Average Day			
		Maximum Day			
		Maximum Month			
b.	Primary Treatment Effluent	Average Day			
		Maximum Day			
		Maximum Month			
c.	Other	Average Day			
	_____	Maximum Day			
		Maximum Month			

*Process source or sewer number should be keyed to the mill process and wastewater treatment schematics requested in Section VIII.

SA 030380

SA00030380

Mill: Bryant Location: Kalamazoo, MI

224. Give the normal pH of the wastewater at the influent to the secondary treatment system. N.A.

(a) 4-6

(b) 6-8

(c) 8-10

225. DELETED - ANSWERED IN PART I

D. Direct Discharger please provide the following information: N.A.

226. Name of effluent discharge receiving water

_____

227. Enclose a copy of current or proposed NPDES effluent discharge limits. N.A.

228. DELETED - ANSWERED IN PART I

229. If wastewater discharge is seasonal or intermittant non-continuous, approximately how many days out of the year do you discharge to the receiving water. N.A.

(a) Less than 30

(b) 31-90

(c) 91-120

(d) 121-180

(e) 181-210

(f) 211-240

(g) 241-270

(h) 271-300

(i) 301-330

(j) 331-360

E. Preliminary Treatment

230. DELETED - ANSWERED IN PART I

231. If neutralization is practiced, fill in the following: N.A.

Chemical used _____

SA 03038

SA00030381

Mill: Bryant Location: Kalamazoo, MI

F. Primary Treatment

232. DELETED - ANSWERED IN PART I

233. Are any chemicals or other settling aids added to the primary treatment units?

(a) Yes

(b) No

(c) To the extent necessary (intermittent).

G. Biological Treatment N.A.

234. Provide the following information for the biological treatment system (if applicable).

	Process Source or Sewer No.*		Flow, MGD	BOD, lb/D	TSS, lb/D
	Design Influent Values	Average Day			
		Maximum Day			
		Maximum Month			
b.	Primary Treatment Effluent	Average Day			
		Maximum Day			
		Maximum Month			
	Other Wastewater Streams Which Enter the Biological Treatment Systems Without Primary Treatment				
c.		Average Day			
		Maximum Day			
		Maximum Month			
d.		Average Day			
		Maximum Day			
		Maximum Month			

*Process source or sewer number should be keyed to the mill process and wastewater treatment schematics requested in Section VIII.

SA 03038

SA00030382

Mill: Bryant Location: Kalamazoo, MI

235. Give the normal pH of the wastewater at the influent to the secondary treatment system. N.A.

(a) 4-6

(b) 6-8

(c) 8-10

236. DELETED - ANSWERED IN PART I

H. Secondary Solids Removal

237-238. DELETED - ANSWERED IN PART I

I. Spray Irrigation

239. Is treated wastewater used for irrigation? N.A.

(a) Yes

(b) No

(c) Partial

J. Sludge Handling and Disposal

240. DELETED - ANSWERED IN PART I

241. Give the percent solids of the sludge after dewatering and prior to disposal.

(a) 5-10%

(b) 10-20%

(c) 20-30%

(d) 30-40%

(e) above 40%

242. Describe any leachate management practices performed at the mill for sludges which are disposed of on land.

Nature of sludge seals the lagoon bottom and sides area. Therefore, no leachate management is necessary.

SA 0303

SA00030383

Mill: Bryant Location: Kalamazoo, MI

K. Foam Control - (Wastewater treatment system only)

243. Does the mill use foam control measures?

(a) Chemical

(b) Physical Methods

(c) None

(d) Other - explain _____

SA 0303

SA00030384

Mill: Bryant Location: Kalamazoo, MI

L. Cost Information

244. Provide cost data indicated for effluent treatment system in 1976 dollars. Use the cost multiplier factors, which follow, to convert to 1976 dollars.

		Total Capital Cost	Annual Operation and Maintenance Cost*
a.	Internal control devoted to effluent waste load reduction.	$678,300	$86,500
b.	External Treatment System		$74,050
c.	Primary Treatment	$420,800	
d.	Secondary Treatment	$ 91,000	

Construction Cost Multipliers
to Convert Capital Cost to 1976 Dollars

1956 =	2.535	1963 =	2.186	1969 =	1.794
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1958 =	2.325	1965 =	2.124	1971 =	1.564
1959 =	2.254	1966 =	2.051	1972 =	1.485
1960 =	2.220	1967 =	1.978	1973 =	1.317
1961 =	2.220	1968 =	1.884	1974 =	1.242
1962 =	2.207			1975 =	1.100

*Factors to be considered in Annual Operation and Maintenance Costs (O & M Costs).

1. Manpower - both operators and maintenance personnel
2. Contracted services
3. Energy Cost
4. Trucks for hauling
5. Nutrients
6. Leased equipment
7. Disposal costs
8. Sludge handling
9. Sampling and analysis
10. Equipment replacement (except major capital)

Exclude Depreciation

* Computer-TOC Analyzer Control System installed in 1977 as applies to Bryant Division.

SA 030385

SA00030385

Mill: Bryant Location: Kalamazoo, MI

245. For mills which discharge to a POTW, please give the annual user fee with a breakdown for capital cost recovery and operation and maintenance costs.

a. Capital Cost Recovery(if available) N.A.

b. Operation and Maintenance (if available) N.A.

c. Total Annual User Fee $ 109,237.97

*July-Dec. 31, 1977 $ 92,023.26

246. Please give the basis used by the POTW to determine the mill's user fee.

(a) Flow only

(b) BOD only

(c) TSS only

(d) Combination of parameters (please indicate) _____

(e) Unknown

M. Site Conditions and Availability of Land

247. Is there sufficient land for expansion of your wastewater treatment system for BATEA?

(a) Yes

(b) No

(c) Unknown

248. Can the mill purchase land from adjoining property owners for possible expansion of the wastewater treatment system?

(a) Yes

(b) No

(c) Unknown

* 1977 user cost to reflect additional cost with reduced BOD limitations as of July 1, 1977.

SA 030386

SA00030386

Mill: Bryant Location: Kalamazoo, MI

249. Are the soil conditions in the land available for future expansion of such a quality as to require special construction methods or special facility equipment (i.e., ledge, water table and liners needed for basins)?

(a) Yes

(b) No

(c) Unknown

250. Miscellaneous Discharges - Indicate any wastewater discharges not described in Section V which do not flow to the wastewater treatment system.

Process water sand filter's backwash water

N. Wastewater Characteristics

251-254. DELETED - ANSWERED IN PART I

255. Was the analysis procedure used for BOD measurement in accord with the method presented in Standard Methods for the Examination of Water and Wastewater?

(a) 13th Edition

(b) 14th Edition

(c) No (please describe other method used) NCASI

256. Is a glucose-glutamic acid BOD standard analyzed?

(a) Yes

(b) No as applies to 1976 analysis procedures

SA 030387

SA00030387

E1

AMERICAN PAPER INSTITUTE
RAW MATERIALS AND ENERGY DIVISION
260 Madison Avenue, New York, N.Y. 10016

CONFIDENTIAL
MONTHLY FUEL AND ENERGY REPORT

Company: _____

Mill Location: _____

Month, Year: _____
(If this is a "period" mill, the period reported is from _____ through _____.)
mo./day mo./day

Mill Reference NO.: _____ FOR API USE ONLY
Region: _____

1. Monthly Fuel and Energy Consumption Data

For each energy source used in the month, please enter to the nearest tenth information in the way you monitor it most accurately. For example, in the case of fuel oil, you would probably enter thousands of barrels. But in the case of bark, you would probably enter Billion BTU's as fired--obtained by applying the bark boiler's rated or estimated efficiency to its metered steam output. Then apply the BTU conversion factor you believe to be most accurate for your operation to compute either Billions of BTU's as in the first case, or weight of fuel at the specified moisture content as in the second case. (See list of average BTU values of nominated fuels, over.) Limit reporting to energy used within the mill fence line, thereby excluding energy used in wood harvesting, transportation and converting operations.

FUEL	UNITS	ACTUAL USE	CONVERSION FACTOR	BILLION BTU's as FIRED
Purchased Fossil Fuel & Energy				
1. Purchased Electricity	Millions KWH		X 3.4 =	
2. Purchased Steam	Millions lbs.		X =	
3. Coal	Thousands Short Tons		X =	
4. Residual Fuel Oil (#5,6)	Thousands 42 Gal. Bbls.		X =	
5. Distillate Fuel Oil (#2)	Thousands 42 Gal. Bbls.		X =	
6. Liquid Propane Gas (L.P.G.)	Thousands Gallons		X =	
7. Natural Gas	Millions Cu. Ft.		X =	
8. Other (specify)			X =	
9. Other (specify)			X =	
10. LESS ENERGY SOLD:				
SUB TOTAL A (1 to 9 less 10):				
Self Generated and Waste Fuels				
11. Hogged Fuel: (Wood & Bark)	Thous. Short Tons (50% moisture content)		X =	
12. Bark: (Enter separately, if available, bark obtained in debarking of pulpwood)	Thous. Short Tons (50% moisture content)		X =	
13. Municipal Waste	Thous. Short Tons (50% moisture content)		X =	
14. Spent Liquor (oven dry basis)	Thousands Short Tons of Solids		X =	
15. Self-Generated Hydroelectric Power	Millions KWH		X 3.4 =	
16. Other (specify)			X =	
17. Other (specify			X =	
SUB TOTAL B (11 to 17):				
GRAND TOTAL C (A+B):				

Total In Plant Electric Generation: _____ Million KWH
(Calculate separately from above totals)

II. Monthly Production Data

Please enter production for the month in thousands of short tons, to the nearest tenth. Mills which use both their own and purchased pulp will enter separate data for "Integrated Paper and Paperboard" and "Nonintegrated Paper and Paperboard."

1. Pulp (dried and wet lap): Report dried and wet lap pulp (reported on a dried basis).

2. Integrated Paper and Paperboard: Report primary product (excluding converted products) manufactured from on-site pulp production, as normally measured.

3. Nonintegrated Paper and Paperboard: Report primary product (excluding converted products) manufactured from off-site pulp production and/or waste paper, as normally measured.

(thousand short tons)

1. Pulp (dried and wet lap on dried basis): _____

2. Integrated Paper & Paperboard: _____

3. Nonintegrated Paper & Paperboard: _____

4. TOTAL PRODUCTION D: _____

III. Please compute millions of BTU's used per ton of output for both "Subtotal BTU's from Purchased Fossil Fuel and Energy" and "Grand Total BTU's."

1. Purchased Energy Per Ton

$$\frac{\text{Subtotal } A}{\text{Total } D} = \_\_\_\_\_ \text{ million BTU's/ton}$$

2. Total Energy Per Ton

$$\frac{\text{Grand Total } C}{\text{Total } D} = \_\_\_\_\_ \text{ million BTU's/ton}$$

IV. Explanation of month to month changes in energy use:

1) If the mill's energy use per unit of output (either purchased and/or total) for this month varied 25% or more from that in the previous month, please explain:

_____

_____

2) Has this mill put into operation during this month additional equipment for effluent and emission control?

YES_____ NO_____

If yes, what net additional energy will this additional equipment require in a full month at current operating rates?

Steam:_____Million lbs. Electricity:_____Millions KWH (Calculate on basis of additional horsepower to be used)

V. The average temperature of incoming water for the month was_____degrees fahrenheit.

Suggested Average Conversion Factors To Obtain Billion BTU's (Question I)

Purchased Steam (No condensate return)	1.3	Hogged Fuel	7.7 (50% moisture content)
Purchased Steam (Condensate return)	1.1	Bark	9.0 (50% moisture content)
Coal	26.2	Spent Liquor	13.4
Residual Fuel Oil	6.3		
Distillate Fuel Oil	6.0		
L.P.G.	0.092		
Natural Gas	1.03		

Please return by the 21st of the following month to:
American Paper Institute
Raw Materials and Energy Division
260 Madison Avenue
New York, N.Y. 10016
Tel. (212) 883-8087

Name: _____

Signature: _____

Telephone. ( ) _____

Date: _____

JMD
June 1976

Mill: Bryant Location: Kalamazoo, MI

257. If the answer to the preceding question was (a), please indicate the normal frequency of the analysis. N.A.

(a) Daily

(b) Weekly

(c) Monthly

(d) Quarterly

(e) Semi-annual

258. Please indicate the average percent difference found between the BOD determinations and the glucose-glutamic acid BOD standard. N.A.

(a) 0-5%

(b) 5-10%

(c) 10-15%

(d) 15-20%

(e) Over 20%

259. Indicate the analysis procedure used for TSS determination at the mill.

(a) Standard Methods for the Examination of Water and Wastewater, 13th and/or 14th Edition.

(b) EPA analysis procedure adopted on October 16, 1973, and any subsequent amendments.

(c) Other (please describe) Same as (a) with a modification of filtering media

SA 030390

SA00030390

Mill: Bryant Location: Kalamazoo, MI

VI. FUEL AND ENERGY

A copy of the API "Monthly Fuel and Energy Report" has been included in this section to assist the mill in calculating (if information is not already available) the answer(s) to the questions asked. The API sheets should be used as a guide for computation only, do not return the pages with the questionnaire.

260. Give the total purchased energy (fossil fuel, electricity, steam, etc.) as equivalent millions BTU/ton of product (Items 1 to 9, less 10 from API forms).

26.6

261. Give the energy used for external treatment operations as equivalent KWHr/ton of product.

None

SA 030391

SA00030391

Mill: Bryant Location: Kalamazoo, MI

VIII. PROCESS SCHEMATICS

Attach separate general block diagrams for the three items listed below.

A. Water Treatment (if applicable) - Provide a general block diagram showing the water treatment system used, chemical application points, average flow, and disposal method for backwash water. If the mill has a raw water analysis available please attach a copy.

B. Manufacturing Process Schematic - Provide a general schematic of the total mill process to include water balance and all process wastewater streams. (See note at start of Section V.) Wastewater streams should be cross referenced to the effluent treatment system schematic.

C. Effluent Treatment System - Provide a general schematic of the effluent treatment system. Please key the diagram to the manufacturing process block diagram so that the point of influent to the treatment system for individual process sewers can be determined. Also show all chemical application points; chemicals used; flow monitoring and sampling points; average flow; size or area, volume, and number of each treatment system component; sludge recycle and volume; and sludge dewatering/thickening system.

Additional information on the mill's wastewater treatment system is also needed to complete the data request. Please provide answers to the following questions which pertain to your wastewater treatment system. For questions which do not apply, indicate by writing N/A (not applicable) on the space provided for the answer.

Primary Treatment

262. Give the following primary clarifier overflow rates:

a. Design 764 gpd/ft^2 at 6.000 MGD

b. Current 322 gpd/ft^2 at 2.532 MGD

SA 030392

SA00030392

Mill: Bryant Location: Kalamazoo, MI

Biological System N.A.

263-268. For the biological system employed, please give answers to the appropriate questions listed below:

	System	Question	Answer	
263.	Aerated Stabilization Basin	a) Volume of the aeration zone	_____	Mil. Gal.
		b) Connected horsepower for aeration	_____	
264.	Activated Sludge	a) Volume of the aeration zone	_____	Mil. Gal.
		b) Connected horsepower for aeration	_____	
		c) MLSS (Mixed Liquor Suspended Solids)	_____	
265.	Trickling Filer	a) Volume of media	_____	
		b) Surface area of filter	_____	ft^2
266.	RBC	a) Surface area of RBC	_____	ft^2
267.	Post Storage	a) Volume of storage	_____	Mil. Gal.

268. If nutrient addition is used, please give the average BOD:N:P ratio.

BOD:N:P ___:_:_

Secondary Solids Removal N.A.

269. Give the secondary clarifier overflow rates:

a. Design _____ gpd/ft^2 at _____ MGD

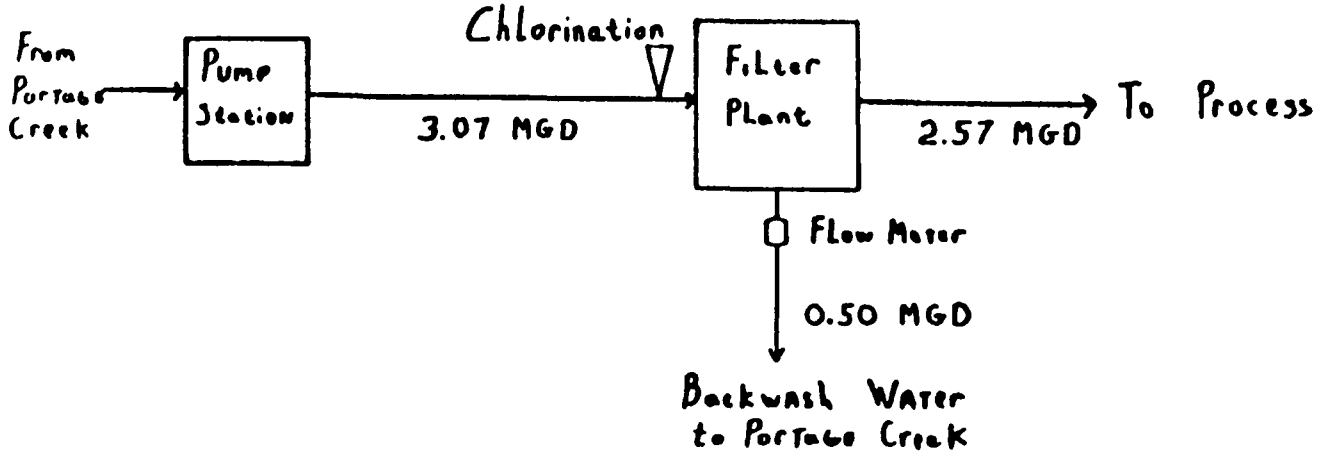
b. Current _____ gpd/ft^2 at _____ MGD

SA 030393

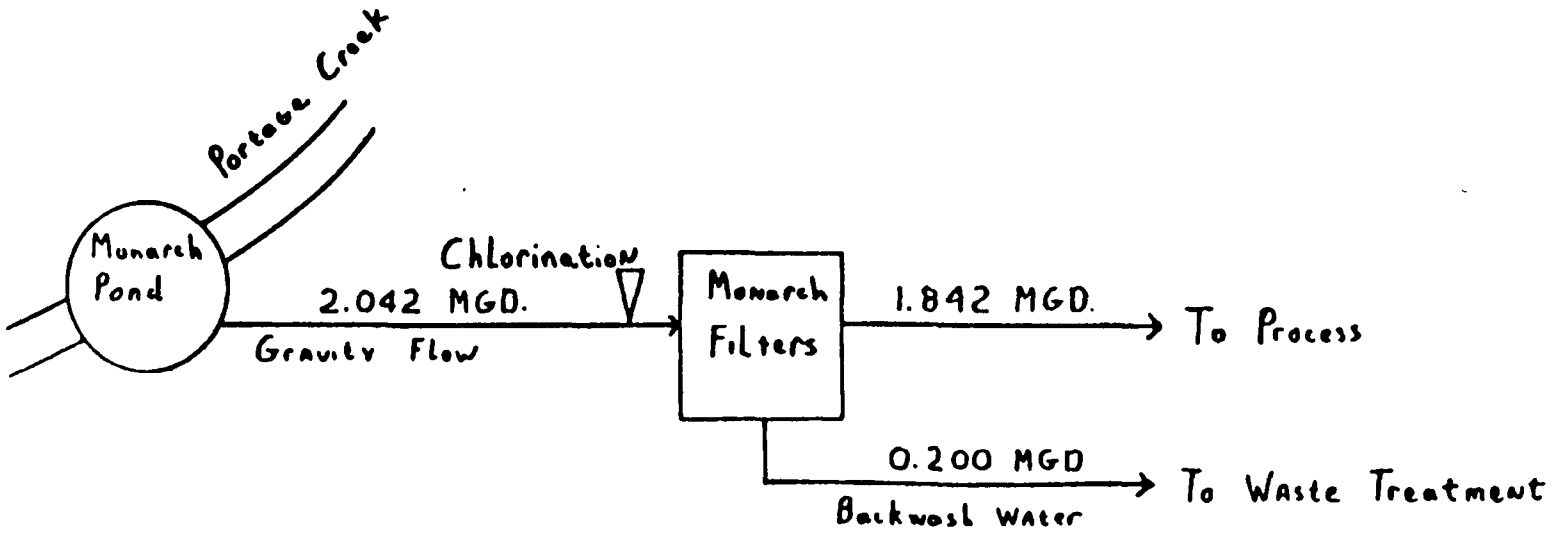
SA00030393

ALLIED'S WATER TREATMENT FLOW SCHEMATIC

Bryant's System

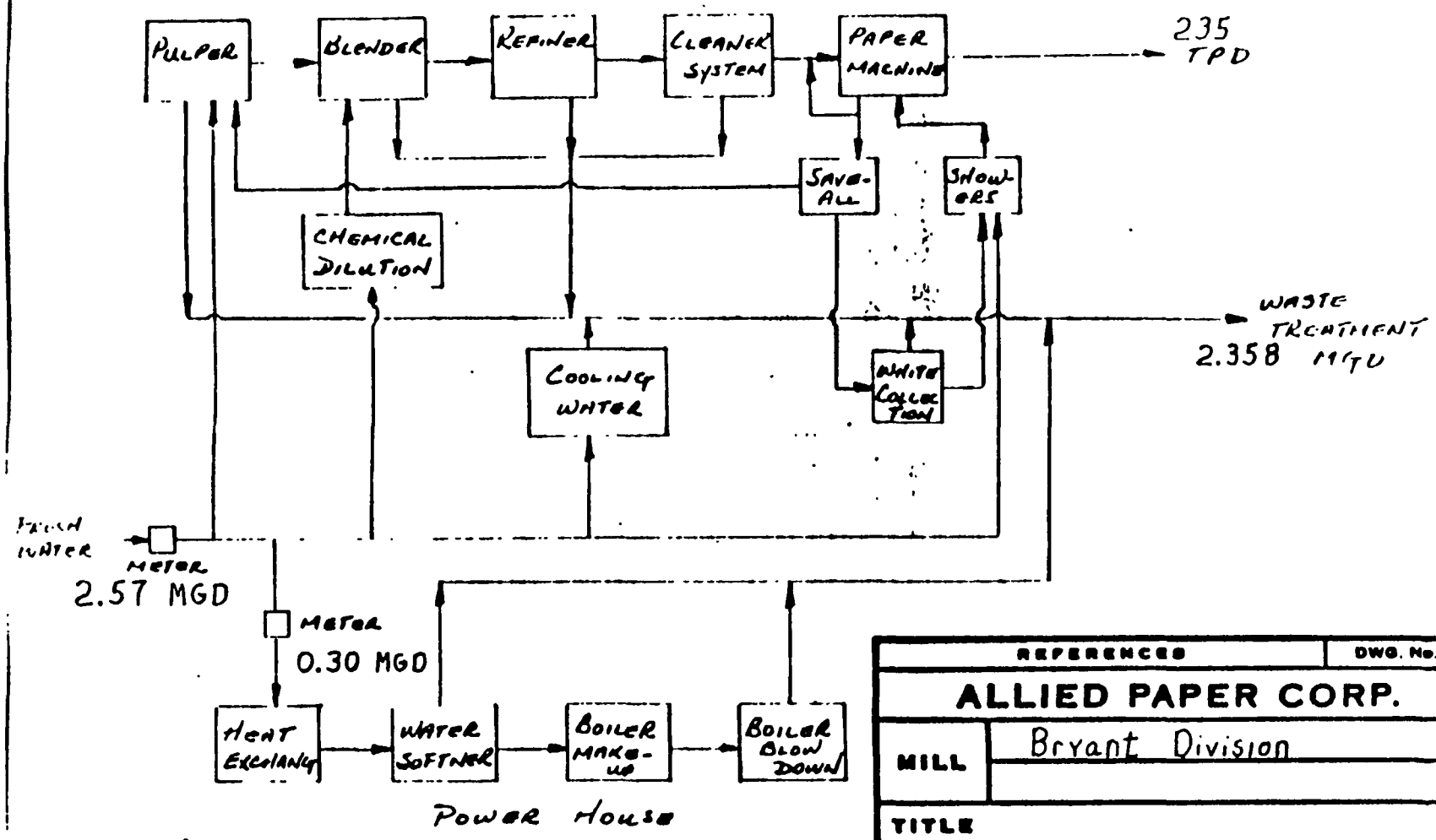


Monarch's System



M.L.S

SA00030394



REFERENCES	DWG. No.
ALLIED PAPER CORP.	
MILL	Bryant Division
TITLE	Mill Process Flow Diagram

REVISIONS	

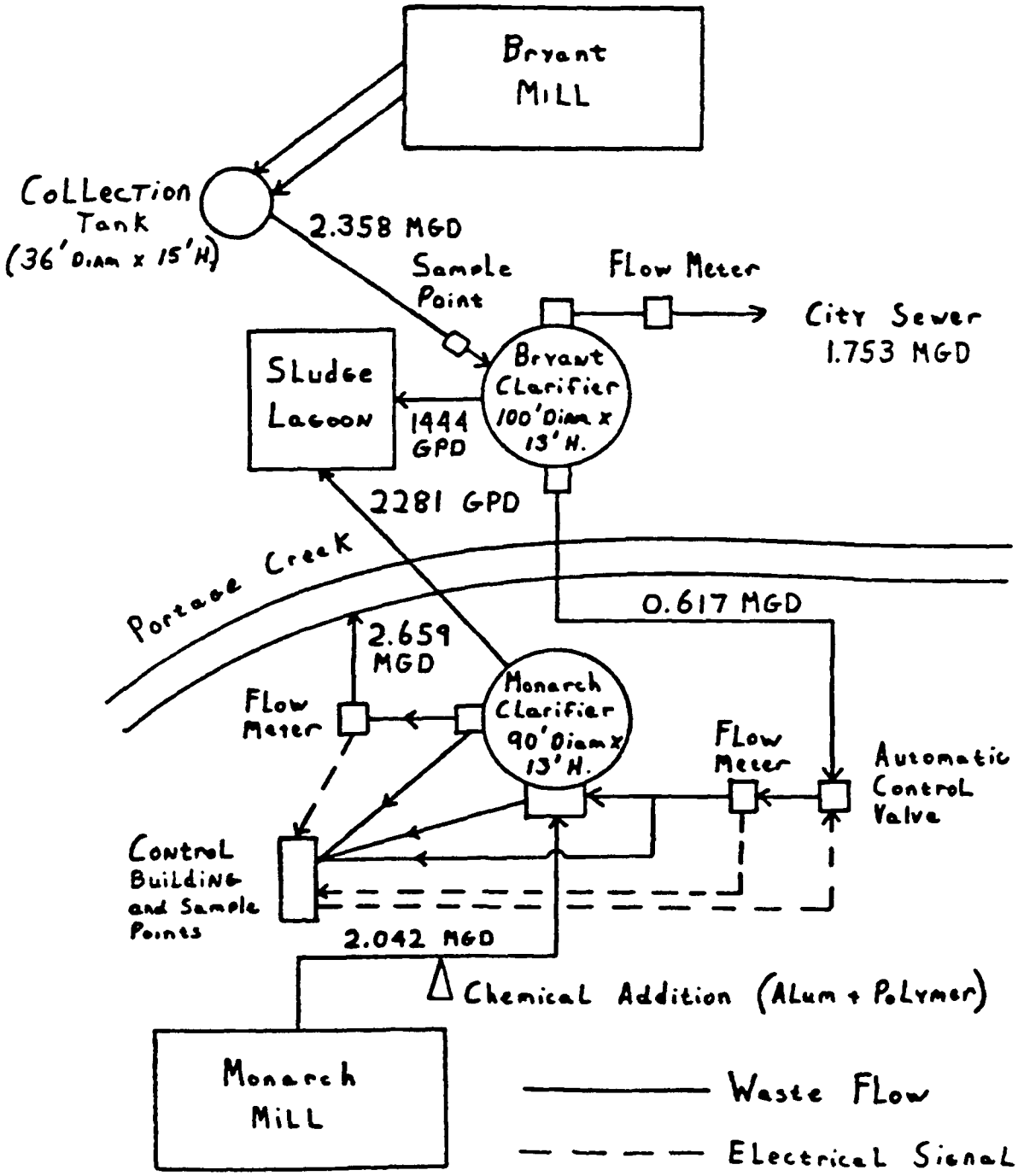
SCALE	NO	DAY	YR.
DRAWN			
TRACED			
CHECKED			
CHECKED			
APPROVED			

DWG. No.

DIETZGEN NO. 1004 AGEPROOF

SA00030395

ALLIED'S WASTE TREATMENT FLOW SCHEMATIC



☆ ALL Flow Figures Are For The Period of July 1, 1997 to Oct. 1, 1977.

Mill: Bryant Location: Kalamazoo, MI

VII. PRIORITY POLLUTANT COMPOUNDS

Please fill in the following information for those priority pollutants which, to your knowledge, are in your raw water supply, or used, or generated in any of the processes in the mill (refer to the following pages for the priority pollutant list). Use the number shown to identify the compound.

It should be noted that many mills may be using quantities of the listed chemicals as additives, cleaning solution, or solvents which are purchased and referred to by a trade name. Please supply trade names of all proprietary type chemicals used in the mill.

Compound Number or Trade Name	Process Where Compound is Used or Generated	Describe Use Quantity	Describe Use Frequency	Sampling or Monitoring Program for Compound (Yes or No)
Allied Paper, Inc. effluent has not been analyzed for the Priority Pollutants, except PCB and Mercury, listed on the following pages. Therefore, there is no available data on the quantity, frequency, sampling or monitoring program for any compounds. PCB and Mercury analyses on random samples indicated trace amounts.				
In addition Allied has requested all their suppliers of process raw materials to indicate if their material(s) contain any of the priority pollutants.				

SA 030397

SA00030397

PART II

CONFIDENTIALITY CLAIMED FOR THE FOLLOWING

Question Number	Question Number	Question Number	Question Number	Question Number	Question Number	Question Number
166	194					
167	196					
168	197					
169	198					
170	199					
171	202					
172	213					
173	233					
174	242					
175	255	247				
176	256	248				
177	257					
179	258					
180	259					
181	260					
185	261					
186	250					
187	VIII Schematics					
188						
189						
190						
191						
192						
193						

SA 030398

SA00030398

Mill: Monarch Location: Kalamazoo, MI

VIII. PROCESS SCHEMATICS

Attach separate general block diagrams for the three items listed below.

A. Water Treatment (if applicable) - Provide a general block diagram showing the water treatment system used, chemical application points, average flow, and disposal method for backwash water. If the mill has a raw water analysis available please attach a copy.

B. Manufacturing Process Schematic - Provide a general schematic of the total mill process to include water balance and all process wastewater streams. (See note at start of Section V.) Wastewater streams should be cross referenced to the effluent treatment system schematic.

C. Effluent Treatment System - Provide a general schematic of the effluent treatment system. Please key the diagram to the manufacturing process block diagram so that the point of influent to the treatment system for individual process sewers can be determined. Also show all chemical application points; chemicals used; flow monitoring and sampling points; average flow; size or area, volume, and number of each treatment system component; sludge recycle and volume; and sludge dewatering/thickening system.

Additional information on the mill's wastewater treatment system is also needed to complete the data request. Please provide answers to the following questions which pertain to your wastewater treatment system. For questions which do not apply, indicate by writing N/A (not applicable) on the space provided for the answer.

Primary Treatment

262. Give the following primary clarifier overflow rates:

a. Design 865 gpd/ft^2 at 5.50 MGD

b. Current 352 gpd/ft^2 at 2.242 MGD

SA 030424

SA00030424

93-1527

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
G. MENNEN WILLIAMS, GOVERNOR

LEGAL COUNSEL
FRANK G. MILLARD
ATTORNEY GENERAL

STAFF
MILTON P. ADAMS
EXECUTIVE SECRETARY
LOUIS F. GERBERG
CHIEF ENGINEER
NORMAN TILLINGS
CHIEF, HYDROLOGY DIVISION

STAFF OFFICES
417 W. Michigan
TEL. 5-0144 Ext. 676

P. O. BOX 87
LANSING 1, MICHIGAN

COMMISSION
GERALD E. EDDY, CHAIRMAN
DIRECTOR OF CONSERVATION
LYNN F. BALDWIN, E. RAPIDS, V. CHAIRMAN
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MUNICIPAL GROUPS
FRANK M. BURKE, JR., COLOMA
INDUSTRIAL MANAGEMENT GROUPS
GEORGE S. McINTYRE
DIRECTOR OF AGRICULTURE

June 18, 1954

Mr. H. B. Johnson
Vice President
Allied Paper Mills
Kalamazoo 99, Michigan

Dear Mr. Johnson:

We have for review a set of three drawings designated as K-1, K-2 and K-3, dated April 1, 1954. These drawings show the facilities proposed for treatment of the mill wastes from your company's King Division at Kalamazoo.

It is our understanding that all de-inking wastes and paper processing wastes will be combined for treatment in the proposed system and that provision will be made to segregate and dispose of condenser waters without passing through the treatment units. In the absence of further information on waste flows we have referred to the findings from our 1950 surveys which showed 5,200 gallons per minute discharged with maximum occuring as high as 6,000 gallons per minute, condenser waters included. The plans have been examined on the basis set forth above as to the adequacy of the fundamental aspect of design and not as to structural details.

The items upon which we want to comment upon specifically are as follows:

1. The settling tank is considered to be of adequate capacity for the waste flow stated above with some additional capacity in reserve to accommodate moderate increase.

2. While duplicate pumping units are considered to be essential, the postponing of the installation of the second pump for the present is acceptable, provided continuous operation can be demonstrated.

(Box # GRB 496,498) STORAGE

92067-B-2.1/081

0002510

SA 010998

Our information to date indicates the single 6,000 gallons per minute pump will have sufficient capacity to cover the ranges of flow rates encountered at the present.

3. Past investigation of waste sludge handling methods has been limited to vacuum filtration and sludge drying beds. The behavior of the sludge under these operations is known. Your plans indicate that sludge is to be discharged to large lagoons that cannot be considered as drying beds. Continuous discharge to these lagoons without a resting and de-watering period may promote decomposition of the sludge with subsequent odors. If you decide to proceed in the face of this possibility, it is essential that appropriate dykes be constructed to confine the sludge within a specific area. The location and dimension of these dykes are not shown on the plans.

4. The internal dimensions in the receiving well, section AA, drawing K-3, do not agree with the overall dimensions from the top of the grating to the floor of the wet-well. The internal dimensions of 48 inches from the invert of the overflow to the underside of the floor slab appears to be in error, based upon elevation shown elsewhere in the plans. Also the vertical dimensions at the left side of section BB do not agree. The 25 foot 8 3/4 inch distance from the center line of the 16-inch suction to the top of the walkway support appears to be in error.

5. The operating level of the water in the wet-well is not specified. This should be established at an elevation that will allow sufficient margin of safety against overflow under the ranges of the water level fluctuation encountered.

6. The plans show that the treated effluent is to be conveyed to the Kalamazoo River by a 48-inch sewer which we are informed is a city-owned sewer. Approval of this change in your use of this sewer from untreated to treated mill waste should be secured from the city if you have not already done so, for the reason that the city may find it necessary now or in the future to divert flow of sanitary sewage that may be present to an interceptor for treatment at the municipal plant.

The system as proposed appears to be reasonably capable of complying with the requirements established in Section (2) of the Commission's Final Order of Determination to the King mill. Since the plans indicate that it is your intention to combine all paper processing wastes with the de-ink pulping wastes for treatment, leaving no separate discharge of paper process wastes, the proposed system disposes of the requirements of Section (3) of that order.

Mr. H. S. Johnson -3- June 18, 1954

Approval of your plans is herewith granted subject to the comments on the pumping units and the reservations expressed about the sludge lagoons and with the understanding that these may not be the final permanent answer to the sludge disposal problem. The final approval of the system will be postponed pending a determination of its performance.

Very truly yours,

Loring F. Gaming
Chief Engineer

WATER RESOURCES COMMISSION

LFO:bc

cc: C. Harvey

0002812

SA 011 000

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER COMPANY
All Outfalls No. 390222
Kalamazoo County
Kalamazoo, Michigan
March 27-28, 1979

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Tuesday, March 27, 1979.

The results of this survey were compared to the final limitations in the facility's National Pollutant Discharge Elimination System Permit, No. MI00779. Based on this comparison, the company exceeded their daily average permit limitations for BOD_5 loading at outfall 390006 (002), but met the daily maximum permit limitations (Table 3).

The results of this survey were also compared to the company's Monthly Operating Report (MOR) results for March, 1979. Flows reported by the company on the survey dates were approximately 19% lower than the reported monthly average flow. Suspended solids and BOD_5 loading rates reported by the company on the survey dates did not agree favorably with Environmental Protection Bureau results (Table 3).

A portion of the composite sample collected at outfall 390006 (002) was split with the company for analysis in their laboratory. The company's BOD_5 results were lower than Environmental Protection Bureau results (Table 4).

Results obtained in this survey were compared to the results of the previous survey conducted in February, 1978 (Table 5). Dissolved solids and BOD_5 concentrations are lower than previous survey results, while COD is higher. Flow during the present survey was approximately one-half the rate computed for the previous survey.

Plant Processes

Allied Paper Company operates two mills in Kalamazoo. The Monarch Mill uses two Fourdrinier machines to produce bible paper and specialty grades. The Bryant Mill produces bible paper and other specialty papers on five Fourdrinier machines. The Fourdrinier machines were all operating during the survey.

Under normal production, the mills produce 313 tons of product per day. Pulp utilized at the mills has previously been treated by the Kraft process at other locations.

The mills employ a total of 485 people. Bryant Mill operation was on a 24-hour per day, 6 day per week schedule during the survey, while the Monarch Mill operated 7 days per week. Production was considered normal during the survey.

Water, Wastewater & Treatment

Portage Creek supplies the process water used at both mills. That water is passed through sand filters prior to its use. Potable water for the mills is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system.

Schematics of the wastewater treatment system and plant configeration are shown in Figure 1 and 2. Wastewater received at the 100-foot circular Bryant clarifier originates from excess white water, filter backwash, and from the lime-soda ash softening process used for boiler feed water. Alum and a polymer are added to improve settling in the Bryant clarifier. The Bryant clarifier effluent is either discharged to the city sanitary sewer system or to the Monarch clarifier. The company maximizes the loading which can be placed on the Monarch clarifier without exceeding permit limitations for discharging to Portage Creek. Flow is automatically apportioned via a computerized system utilizing a total organic carbon analyzer.

The 90-foot circular Monarch clarifier receives Bryant clarifier effluent, as well as excess white water, filter backwash, and zeolite waste from the boiler feed water system at the Monarch Mill. Alum and a coagulation agent are added to the Monarch clarifier to improve settling. Monarch clarifier effluent discharges to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property.

Survey Procedure

The flows and samples were obtained as follows:

Outfall	Flow Measurement	Sampling
390006 (002) Process	Flow was obtained using an existing 48-inch full channel weir and Stevens water level recorder.	A proportional automatic air-activated composite sampler + 2 grabs. Sample for phenols was grab composited.

A water level recorder provides a continuous account of the liquid level or head above the crest of a weir or through a flume. A head versus time graph is obtained for the duration of the survey period. The total volume of wastewater over the weir or through the flume during the survey period is computed from the graph.

KA04800841

Guenther
EXHIBIT NO. 19a
1-27-93
C. LYSTER

9001457

KA04800841

An automatic sampler composites samples at timed intervals. Samples may be proportional to the instantaneous flow over the weir or through the flume.

A grab composite consists of a series of individual grabs composited into one sample.

An individual grab is a single instantaneous sample.

Samples were analyzed by the Environmental Protection Bureau Laboratories located in Lansing.

Samples were preserved according to Table 6. The results of the physical and chemical analyses are presented in Tables 1 & 2.

Allied Paper Company - Kalamazoo

Table 1 Analyses of composite samples.

Outfall		390006 (002) Process
Survey Period	From	3-27-79 - 1200
	To	3-28-79 - 1200
Computed flow rate* (M^3/day)		7,660
Highest flow rate (M^3/day)		13,400
Lowest flow rate (M^3/day)		3,630

	mg/l	kg/day
5-day BOD	34	260
COD	65	500
TOC	21	160
Suspended solids	7	50
Dissolved solids	460	3,520
Settleable solids	< 7	< 50
Phenols	< 0.01	--
Total chromium (Cr)	< 0.01	--
Total zinc (Zn)	0.01	0.08

* Flow rates used in the computation of kg/day.
To obtain MGD multiply M^3/day by 0.0002642
To obtain lbs/day multiply kg/day by 2.205

Allied Paper Company - Kalamazoo

Table 2 Analyses of grab samples.

	Date	Time	Temp.[1] °C	pH[1] S.U.	Oil & Grease mg/l	TOC mg/l	COD mg/l	BOD mg/l	Susp. solids mg/l	Diss. solids mg/l	Settle. solids mg/l	Phenols mg/l	Total zinc mg/l	Total chromium mg/l
	390006 (002) Process													
1	3-27-79	2020	17.0	6.7	1.0	24	74	41	6	490	< 6	< 0.01	0.02	< 0.01
2	3-28-79	0745	19.5	7.1	1.0	21	67	44	5	450	< 5	0.018	0.03	< 0.01

1 - Values determined in the field at time of sampling.

Table 3 Comparison of survey results with the facility's NPDES Permit and Monthly Operating Report.

Parameter (Unit)	NPDES Permit Final Limitations Daily Average	NPDES Permit Final Limitations Daily Maximum	March Monthly Operating Report Monthly Average	March Monthly Operating Report Monthly Maximum	Survey Result 3-27-79	Survey Result 3-28-79
390006 (002) Process						
Flow (M^3/day)	--	--	9,035	--	7,267	7,358	7,660
Settleable solids (ml/l)	--	--	0.07	0.10	0.05	0.05	--
Oil & Grease (visual) (mg/l)	--	--	--	1	1	1	--
pH (S.U.)	not <6.5 nor >9.5	--	--	7.3 min. 6.5	-- 7.1	-- 7.2	(1.1) (6.7)
BOD_5 (kg/day)	230	350	216	321	154	181	260
Total susp. sol. (kg/day)	230	350	145	329	116	147	50

1 - Survey results are for the composite sample. Grab sample ranges are shown in parentheses ( ).
To obtain MGD multiply M^3/day by 0.0002642
To obtain lbs/day multiply kg/day by 2.205

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Table 4 Comparison of the laboratory analytical results obtained by Allied Paper Company and the Environmental Protection Bureau from the split composite samples.

Outfall	390006 (002) Process	
	E.P.B.	Allied Paper
Flow (M^3/day)	7,660	7,343
	mg/l	mg/l
5-day BOD	34	23.2
Suspended solids	7	4

Table 5 Comparison of the previous survey results with the results obtained in this survey.

Outfall	390006 (002)	
Survey Date From	2-27-78 - 1440	3-27-79 - 1200
To	2-28-78 - 1440	3-28-79 - 1200
Flow Rate (M^3/day)	15,000	7,660
	mg/l	mg/l
5-day BOD	42	34
COD	54	65
TOC	21	21
Suspended solids	7	7
Dissolved solids	490	460
Settleable solids	< 7	< 7
Phenols	< 0.01	< 0.01

Table 6 Sample Preservation

Parameter	Preservative
COD & TOC	10 drops conc. H_2SO_4/250 ml (to pH <2).
Phenolics	Dechlorinate with ascorbic acid (if needed). 10 drops 10 N NaOH (to pH 12)/250 ml.
Total Metals	2 ml 1:1 HNO_3/250 ml (to pH <2).
Oil & Grease	10 drops conc. H_2SO_4/250 ml (to pH <2).

All samples cooled to 4°C and preserved upon collection and chain of custody maintained.

Survey by: John Schroeter, Sanitary Engineer
Joseph Hey, Water Quality Investigator
William Erickson, Water Quality Technician

Contact with Management: U.G. Stoeffler, Certified Operator

Physical & Chemical Analyses by: Environmental Protection Bureau Laboratory

Report by: John Schroeter
Joe Hey
Point Source Studies Section
Environmental Services Division
Environmental Protection Bureau
Michigan Department of Natural Resources

Distribution "A"
MM

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KA04800843
9001459

FIGURE. I

ALLIED PAPER MILLS
KALAMAZOO

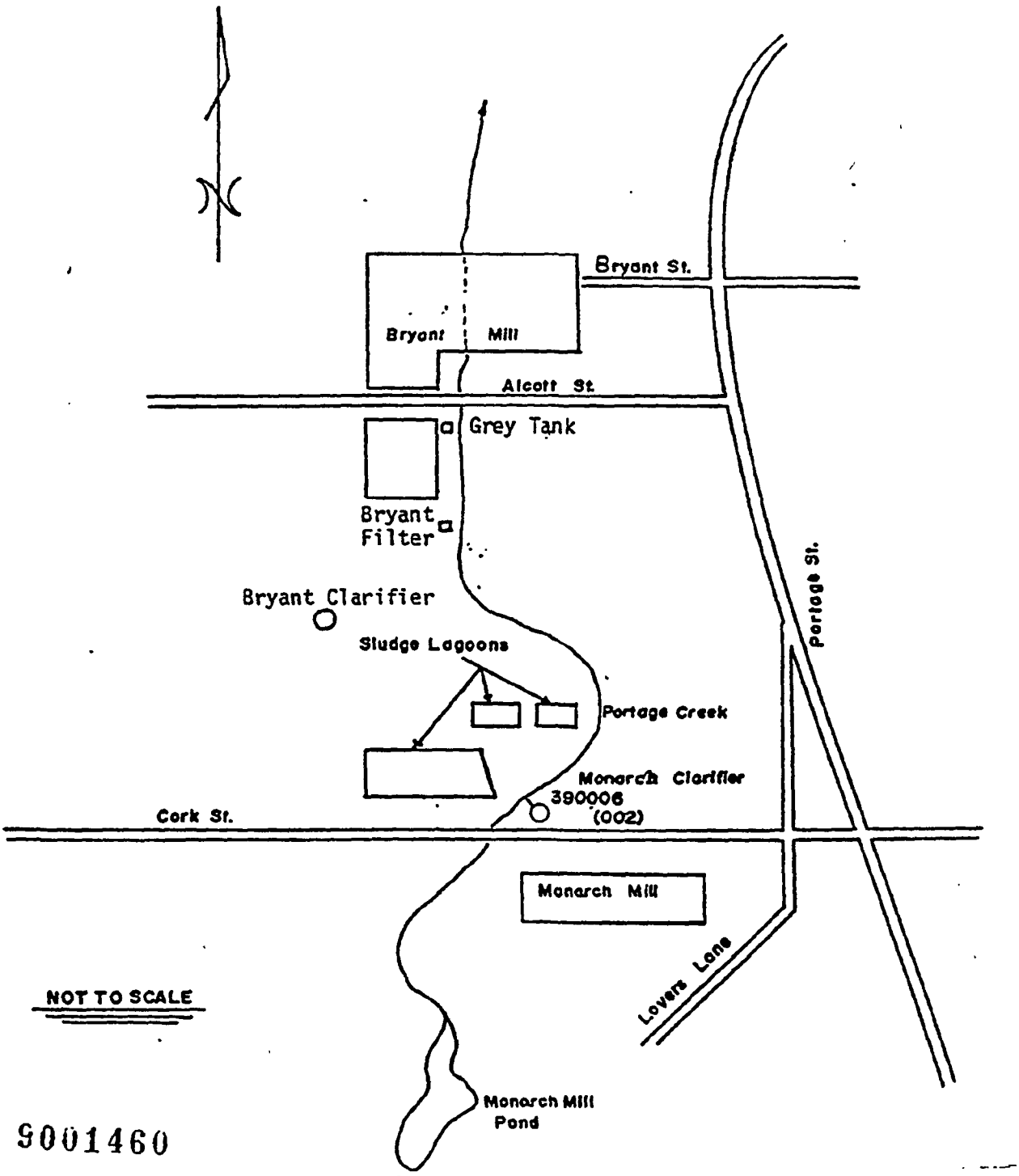

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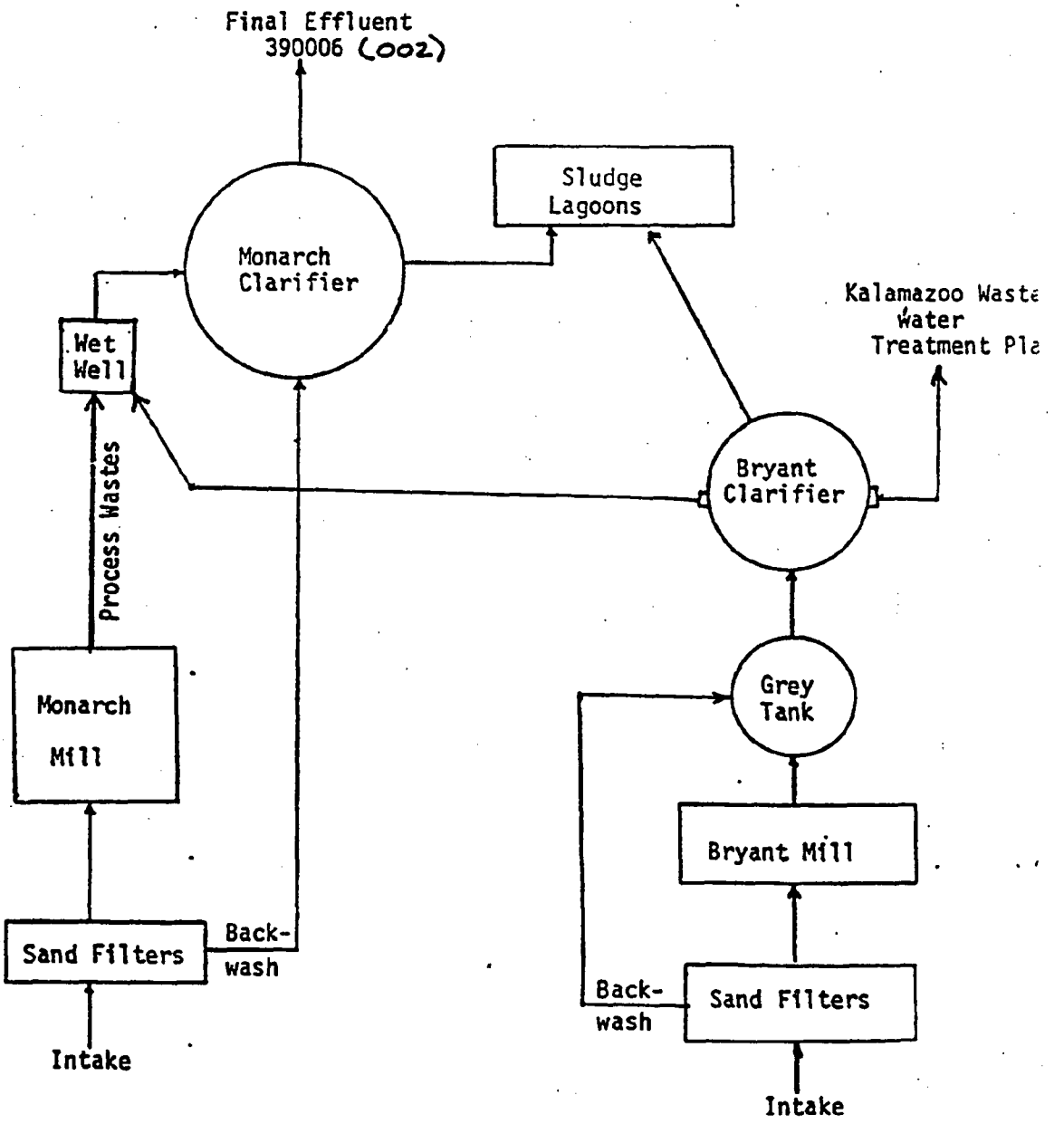
Figure 2 Allied Paper Incorporated, Kalamazoo Mills



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KA04800845

Report of a Toxicity Evaluation Conducted on Wastewaters Discharged by
ALLIED PAPER COMPANY
Kalamazoo, Michigan
March 29-31, 1979

Summary

During March 29-31, 1979 a static toxicity evaluation was conducted on a sample of treated process wastewater discharged by Allied Paper Company, outfall 390006 (002), to Portage Creek. The macroinvertebrate Daphnia magna was used as the test species during the toxicity evaluation.

Effluent from outfall 390006 (002) was not toxic to D. magna on an acute (short term) basis. A 48-hour LC50 (effluent concentration lethal to 50 percent of the test organisms) could not be calculated due to the lack of daphnid mortality.

Methods & Procedures

On March 27-28, 1979 Environmental Protection Bureau personnel collected a 24-hour composite sample of treated process wastewater from outfall 390006 (002) at Allied Paper Company, Kalamazoo. The sample was transported to the Lansing laboratory for toxicity testing.

A 48-hour static toxicity test using Daphnia magna (<24 hours old) was conducted according to procedures outlined in the U.S.-EPA publication, Methods for Acute Toxicity Tests with Fish, Macroinvertebrates and Amphibians. The following effluent concentrations were prepared using dechlorinated, activated carbon filtered Lansing city water as the diluent: 100, 75, 50, 25, 10 and 5 percent effluent. Controls were provided using 100 percent dilution water. Duplicate test chambers (250 ml glass beakers) containing 200 mls of test solution were prepared for each concentration and control to provide suitable replication. Five daphnids were randomly assigned to each test chamber marking the start of the test (3-29-79 at 1210). Selected chemical and physical analyses were run on the 100 percent, 25 percent and control solutions at the beginning and end of the test. Table 1 presents the results of these analyses.

Results & Discussion

Wastewater discharged from outfall 390006 (002) during the survey period was not toxic to D. magna on an acute basis (Table 2). A 48-hour LC50 could not be calculated due to a lack of daphnid mortality.

Table 1 Routine water chemistry analyses run in the 100% effluent, 25% effluent and control test solutions at the beginning and end of the 48-hour exposure period.

Parameter	Outfall 390006 (002)					
	3-29-79			3-31-79		
	Control	25%	100%	Control	25%	100%
Dissolved oxygen (mg/l)	8.8	8.9	9.4	8.0	7.0	6.0
Percent saturation	101	102	108	92	80	69
pH (S.U.)	7.3	7.0	6.8	7.2	7.2	7.1
Temperature (°C)	22	22	22	22	22	22
Conductivity (umhos)	343	433	706	348	436	701

Table 2 Percent mortality in each test concentration after 48 hours exposure to Allied Paper Company process wastewater.

	48-hour percent mortality 390006 (002)
100	0
75	0
50	0
25	0
10	0
5	0
0	0

Effluent Samples Collected By: Joseph Hey, Water Quality Investigator
William Erickson, Water Quality Technician

Industrial Wastewater Survey Engineer: John Schroeter, Sanitary Engineer

Toxicity Evaluation By: Bonnie White, Aquatic Biologist

Report By: Bonnie White
Point Source Studies Section
Environmental Services Division
Environmental Protection Bureau
Michigan Department of Natural Resources

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Mill: Monarch Division Location: Kalamazoo, MI

V. WATER USAGE AND EFFLUENT TREATMENT PRACTICES

Instructions for Completing Section V

Section V requests information on the mill's wastewater treatment practices. In Section VIII a general schematic of the effluent treatment system is requested. You have the option of providing any of the data requested in Section V on the schematic. If you do this, please indicate on the question(s) involved that the data is presented on the schematic.

A. Water Usage

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

B. Background Data

211. Indicate the method(s) of disposal of the mill wastewater.

(a) Direct

(b) Indirect

(c) Self-contained

(d) Other (please describe) _____

212. Please give the year in which the following portions of the mill's existing wastewater treatment system were started up.

	Year of Startup
a. Primary Treatment System	1953
b. Secondary Treatment System	

C. Indirect Discharger (discharge to a POTW) please provide the following information:

215. Is raw wastewater pretreated externally prior to discharge to the POTW? (Pretreatment is considered to be any treatment device external from the mill production processes which is utilized prior to a primary and secondary treatment system, or prior to discharge by an indirect discharger to a POTW.)

(a) Yes Not Applicable

(b) No

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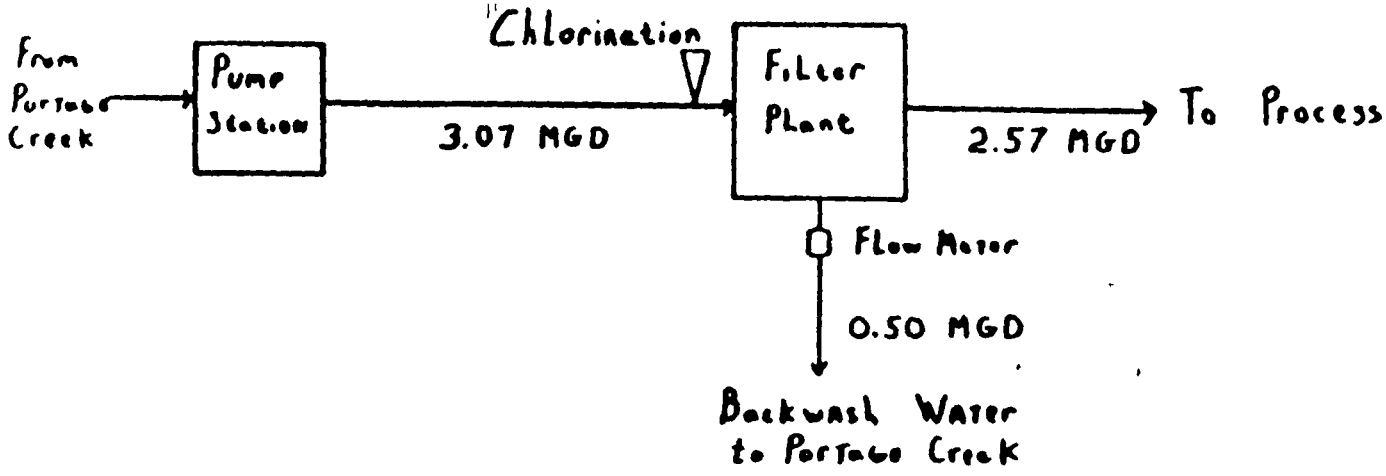
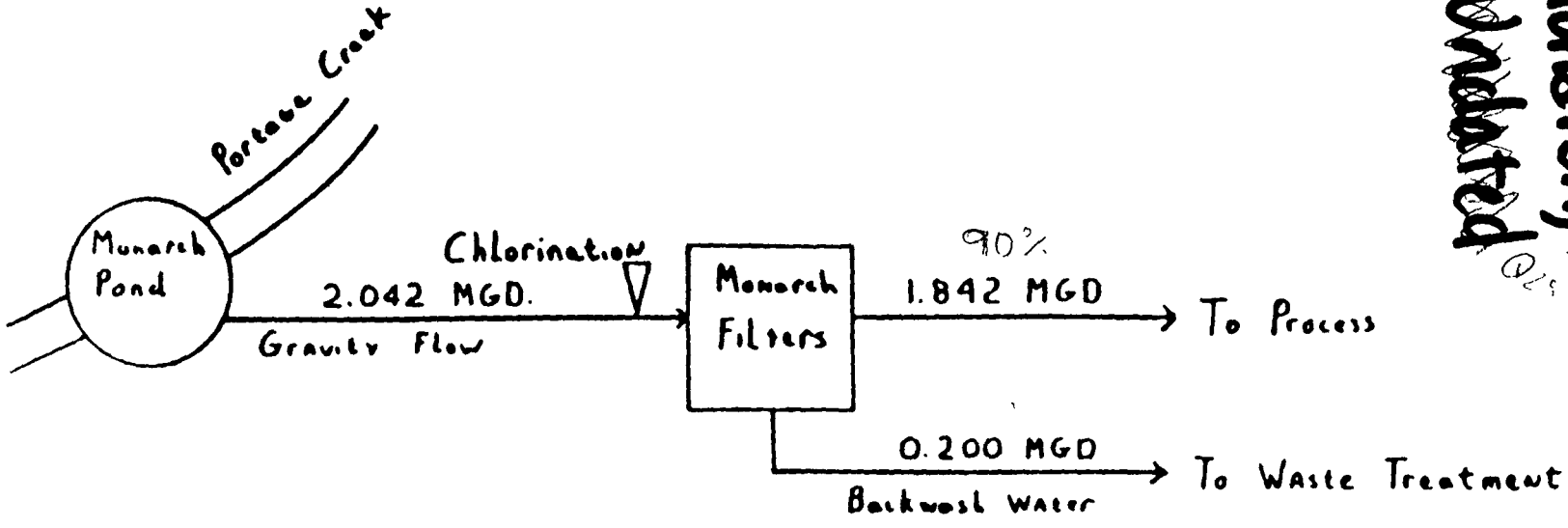
ALLIED'S WATER TREATMENT FLOW SCHEMATIC

Bryant's System



Monarch's System



Bryant, Monarch, Updated

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
MONARCH MILL
Kalamazoo County
Kalamazoo, Michigan
August 16-18, 1976

93-420

Survey Summary

Wastewater monitoring was performed during two twenty-four hour survey periods starting Monday, August 16, 1976.

The results of this survey met the initial limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779 (Table 3).

Comparison of survey results with the company's August 1976 monthly operating report indicates the survey was representative of plant performance for the month of August (Table 1).

Composite samples from the two 24-hour surveys were split with the company for analysis in their laboratory. The company's BOD results compare well with the Environmental Protection Bureau laboratory results. Company's results for suspended solids and settleable solids were lower than EPB results (Table 4).

Comparison of the results of this survey with results of the May 1975 survey show a reduction in the concentration of most parameters while the flow increased by about 0.9 MGD (Table 5).

Leachate from the company's sludge lagoons is entering a ditch and flowing into Portage Creek. This leachate was sampled after it combined with the ditch flow (Figure 1).

The leachate had a concentration of 1242 PCB of 0.4 ug/l.

Survey Comments

This company appears to be reporting settleable solids in grams per liter.

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., Monarch Mill, to Portage Creek and to check for compliance with the NPDES Permit No. MI0000779.

This survey was conducted in conjunction with an intensive water quality study of the Kalamazoo River conducted by the Comprehensive Studies Section.

Plant Processes

Allied Paper, Inc. currently operates two mills in Kalamazoo, the Monarch Mill and the Bryant Mill (Figure 1). A third mill, the King Mill, is no longer in operation.

A total of 275 tons of paper products are produced at the mills under normal production. Both mills use virgin pulp in a standard papermaking operation.

The Monarch Mill utilizes two Fourdrinier paper machines to produce bible paper and carbon tissue for "one-time" carbon paper. Both machines were operating during the survey.

The Bryant Mill produces bible paper and other specialty papers using five Fourdrinier paper machines. One of the machines was out of service at the beginning of the survey.

The mills employ about 475 people. Both mills were shut down during the weekend prior to the survey, but production had resumed on the first day of the survey. Production is on a twenty-four hour a day basis, averaging six days per week.

Water, Wastewater and Treatment

Potable water for the mills is obtained from the City of Kalamazoo. Domestic wastewater is discharged to the Kalamazoo Wastewater Treatment System. Process water for the Monarch Mill is obtained from Portage Creek upstream of the Monarch dam and is treated using sand filters before being used in the mill. Process water for the Bryant Mill is obtained from Portage Creek near Cork Street and is also passed through sand filters prior to use.

A 90-foot circular clarifier at the Monarch Mill and a 110-foot circular clarifier at the Bryant Mill are used to treat process wastewater. All process wastewater from the Monarch Mill, consisting mainly of excess white water-paper machines, goes directly to the Monarch clarifier. Backwash water from the sand filters at the Monarch Mill is also discharged to the Monarch clarifier.

The Bryant clarifier receives a portion of the process waste from the Bryant Mill along with wastes from the zeolite and lime-soda ash softeners. The Bryant clarifier discharges to the Kalamazoo Wastewater Treatment System. The remainder of the flow from the Bryant Mill is then diverted to the Monarch clarifier for treatment.

Alum and a coagulation agent are added to the Monarch clarifier to increase settling and flocculation. The effluent from the clarifier discharges to

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Portage Creek through outfall 390006. The sludge from the clarifier is disposed of on plant property across Portage Creek (Figure 2).

Sand filter backwash from the Bryant Mill's water system is discharged directly to Portage Creek. This discharge is not covered in the NPDES permit.

Leachate from this sludge disposal area was observed to be flowing into a ditch and eventually to Portage Creek, just upstream of the company's intake. The water was very dark at the beginning of the survey, however the company applied a large dosage of lime causing it to clear up. Results of samples collected from the sludge leachate are included in the tables.

Survey Procedure

The survey crew utilized a company constructed 48-inch full channel weir for flow measurement and proportional sample collection on outfall 390006 (002), the wastewater discharge from the company's clarifier. The survey crew constructed a 60-degree vee-notch weir on the sludge leachate.

Each weir was equipped with a water level recorder and an automatic sampler; scoop-type on sludge leachate and air-activated on 390006 (002). The water level recorder provided a continuous account of the liquid level or head above the crest of each weir on a head versus time graph for the duration of each survey period. The total volume of wastewater over each weir during the survey period was computed from the graph. The automatic scoop-type and air-activated samplers obtained samples proportional to the instantaneous flow over each weir at 5-minute intervals. These individual samples were deposited in a clean container to make up a composite sample representative of the total flow over each weir during the survey period.

A series of individual grab samples were collected from outfalls 390006 (002) and sludge leachate for selected physical, chemical and bacteriological analyses.

All samples collected were preserved according to Table 6.

The composite and grab samples were transported to the Environmental Protection Bureau laboratory located in Lansing for selected quantitative physical and chemical analyses. The following formula was used to compute the pounds per day of various wastewater constituents discharged:

lbs/day = flow (mgd) x conc. (mg/l) x unit weight of water (8.34 lbs/gal).

The bacteria samples were transported to the Michigan Department of Public Health, Bureau of Laboratories located in Lansing for selected quantitative bacteriological analyses.

The results of the physical, chemical and bacteriological analyses are presented in Tables 1 and 2.

Table 1 Quantitative analyses of the two 24-hour composite samples collected from Allied Paper, Inc., Monarch Mill discharge, 390006 (002) and sludge leachate, to Portage Creek to determine the concentration of the wastewater constituents present in the samples, plus the computed pounds per day (lbs/day) of these constituents being discharged. Also noted are the highest and lowest flow rates recorded during the respective survey periods.

Outfall		390006 (002)			
Survey Period	From	8-16-76 - 1300		8-17-76 - 1335	
	To	8-17-76 - 1330		8-18-76 - 1335	
Computed flow rate (mgd) *		3.64		4.28	
Highest flow rate (mgd)		4.33 - 1510-8/16		4.67 - 1420-8/17	
Lowest flow rate (mgd)		2.9 - 1620-8/16		2.25 - 0950-8/18	
pH (S.U.)		7.3		6.9	
		mg/l	lbs/day	mg/l	lbs/day
5-day BOD		14	430	17	600
20-day BOD		20	600	21	750
COD		20	600	30	1,100
T.O.C.		8.7	260	9.7	350
Suspended solids		6	200	2	70
Dissolved solids		468	14,200	448	16,000
Orthophosphate-P		< 0.01	--	0.01	0.4
Total phosphorus-P		0.02	0.6	0.06	2
Nitrite & nitrate nitrogen-N		0.49	15	0.66	24
Ammonia nitrogen-N		0.02	0.6	0.01	0.4
Organic nitrogen-N		0.25	8	0.72	26
Chlorides (Cl)		38	1,200	33	1,200
Sulfates (SO4)		140	4,300	130	4,600
Phenols		0.68	18	0.45	16
Color (Pt. Co.)		3	--	2	--
Turbidity (F.T.U.)		16	--	8.0	--
		ug/l			
1242 PCB **		< 0.1			
1254 PCB **		< 0.1			
1260 PCB **		< 0.1			

* Flow rates used in the computation of lbs/day.
** PCB samples were composited over 48 hours.

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Table 1 (continued)

Outfall	Sludge Leachate			
Survey Period From	8-16-76 - 1410		8-17-76 - 1415	
To	8-17-76 - 1410		8-18-76 - 1415	
Computed flow rate (mgd) *	0.03 (1)		0.03 (1)	
pH (S.U.)	8.4		10.8	
	mg/l	lbs/day	mg/l	lbs/day
5-day BOD	11	2.8	9	2.3
20-day BOD	13	3.3	11	2.8
COD	32	8.0	29	7.3
Suspended solids	515	130	280	70
Dissolved solids	324	80	224	60
Settleable solids	491	120	--	--
Orthophosphate-P	0.02	0.01	< 0.01	--
Total phosphorus-P	0.21	0.05	0.05	0.01
Nitrite & nitrate nitrogen-N	0.04	0.01	0.06	0.02
Ammonia nitrogen-N	0.39	0.1	0.49	0.1
Organic nitrogen-N	0.35	0.09	0.41	0.1
Chlorides (Cl)	24	6	26	7
Sulfates (SO_4)	96	20	72	20
Phenols	0.15	0.04	0.08	0.02
Color (Pt Co.)	--	--	7	--
Turbidity (F.T.U.)	--	--	92	--
	ug/l			
1242 PCB **	0.40			
1254 PCB **	< 0.1			
1260 PCB **	< 0.1			

* Flow rates used in the computation of lbs/day.
** PCB samples were composited over 48 hours.
(1) - Flow was constant over survey period.

Table 2 Quantitative analyses of grab samples collected from Allied Paper, Inc., Monarch Mill discharges, 39000 and leachate, to Portage Creek to determine concentrations of select physical, chemical and bacteriol cal constituents present in the wastewater.

Date	Time	Flow[1] MGD	Temp[2] °C	pH[2] S.U.	Oil & Grease mg/l	BOD5 mg/l	Susp. solids mg/l	Settle. solids mg/l	Ortho-phosphate mg/l	Total phos-phorus mg/l	Nitrite & nitrate nitrogen mg/l	Ammonia nitrogen mg/l	Orga nitro mg/l
390006 (002)													
8-16-76	2115	3.72	25	6.9	1	16	21	13	< 0.01	0.03	0.53	0.06	0.26
8-17-76	0820	3.6	24.5	7.0	< 1	--	4	--	< 0.01	0.01	0.42	0.02	0.21
8-17-76	2130	4.6	27	7.3	2	--	6	--	< 0.01	0.01	0.69	0.04	0.67
8-18-76	1335	4.0	26	6.9	2	24	12	--	< 0.01	0.02	0.78	0.04	0.62
Sludge Leachate													
8-16-76	2055	0.03	15	7.4	--	16	--	--	0.21	0.29	0.01	0.07	0.63
8-17-76	0800	0.03	12.5	7.3	--	--	--	--	0.20	0.28	0.01	0.14	0.56
8-17-76	2115	0.03	15	11.8	--	--	--	--	< 0.01	0.04	0.07	0.50	0.32
8-18-76	1400	0.03	14.5	10	--	9	--	--	0.01	0.07	0.02	0.50	0.37

	Fecal Coliform cts/100 ml	Fecal Strep. cts/100 ml	Temperature °C
390006 (002)			
8-16-76 1300	30	< 10	21.5
8-16-76 2115	160	< 10	25
8-17-76 0820	50	< 10	24.5
8-17-76 2130	< 10	--	27
8-18-76 0840	60	--	--
8-18-76 1335	70	--	26
Geometric Mean	50		
Sludge Leachate			
8-16-76 1410	430	800	12.5
8-16-76 2055	210	790	15
8-17-76 0800	230	570	12.5
8-17-76 2115	< 10	--	15
8-18-76 0855	< 10	--	--
8-18-76 1400	10	--	14.5
Geometric Mean	50	700	

1 - Flow at time of grab sampling.
2 - Values determined in the field at time of sampling.

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Table 3 Comparison of results obtained during the survey at Allied Paper, Inc., Monarch Mill with the facil NPDES Permit, No. MI0000779, and monthly operating report for August, 1976.

Parameter (Unit)	NPDES Permit Initial Limitations		Monthly Operating Report					Survey	
	Daily Average	Daily Maximum	Monthly Average	Monthly Maximum	8-16-76	8-17-76	8-18-76	1st 24	2nd 24
390006 (002)									
Flow (MGD)	--	--	3.91	5.0	3.09	3.93	3.65	3.64	4 28
BOD_5 (lbs/day)	1205	2210	320	653	154	265	269	430	600
Susp. solids (lbs/day)	825	2300	196	964	258	197	304	200	70
Sett. solids (mg/l)	--	--	0.06	0.15	0.10	0.05	0.05	--	--
Oil & Grease (mg/l)	--	10	0.7	1.0	--	1.0	--	--	--
pH (S.U.)	not <6.5 nor >9.5		--	max 7 6 min 6.5	7.2	7.1	6 9	7.3	6 9

Table 4 Comparison of the laboratory analytical results obtained by Allied Paper, Inc., Monarch Mill and the Environmental Protection Bureau from the split composite samples.

Outfall	390006 (002)				Sludge Leachate			
	1st 24-hour		2nd 24-hour		1st 24-hour		2nd 24-hour	
	E.P.B.	Allied	E.P.B.	Allied	E.P.B.	Allied	E.P.B.	Allied
pH (S.U.)	7.3	6.9	6.9	6.7	8.4	9.2	10.6	10.4
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
5-day BOD	14	10.6	17	13.6	11	15	9	19.5
Suspended solids	6	2.8	2	1.0	535	513	280	2.8
Settleable solids	--	trace	--	trace	491	2.0	--	1.5

Table 5 Comparison of the analytical results obtained on the previous survey of Allied Paper, Inc., Monarch Mill in May 1975 with the results obtained in this current survey.

Outfall	390006 (002)			
Survey Date From	5/5/75-1655	5/6/75-1600	8/16/76-1300	8/17/76-1335
To	5/6/75-1555	5/7/75-1550	8/17/76-1330	8/18/76-1335
Flow Rate (MGD)	2.78	3.35	3.64	4.28
pH (S.U.)	6.4	6.9	7.3	6.9
	mg/l	mg/l	mg/l	mg/l
5-day BOD	23	35	14	17
COD	57	86	20	30
TOC	22	41	8.7	9.7
Total solids	484	424	468	454
Suspended solids	24	8	6	2
Settleable solids	2	< 8	--	--
Sulfates (SO_4)	--	156	140	130
Color (S.U.)	4	8	3	2
Turbidity (F.T.U.)	69	54	16	8.0

Table 6 Sample Preservation

Parameter	Preservative
BOD	Cooled to 4°C.
COD	5 drops H_2SO_4/125 ml (to pH <2). Cooled to 4°C.
D.O.	Fixed on site.
General Chemistry	Cooled to 4°C.
Microbiology	2 drops 10% sodium thiosulfate/125 ml to dechlorinate sample. Cooled to 4°C.
Nutrients	Cooled to 4°C.
Oil & Grease	1 ml 1:1 H_2SO_4/250 ml (to pH <4). Cooled to 4°C.
Phthalate, PCB	Collected in glass bottle.

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Survey by	Dennis Bittner, Sanitary Engineer William Long, Water Quality Investigator Richard Irvin, General Foreman
Contact with Management	U G Stoeffler
Hydrocarbon Analyses by	Tom Wilcox, Chemist
Physical & Chemical Analyses by	Ray Wimmer, Chemist
Bacteriological Analyses by	Michigan Department of Public Health Bureau of Laboratories
Report by	Dennis Bittner William Long Point Source Studies Section Environmental Services Division Environmental Protection Bureau Michigan Department of Natural Resources

Distribution "A"
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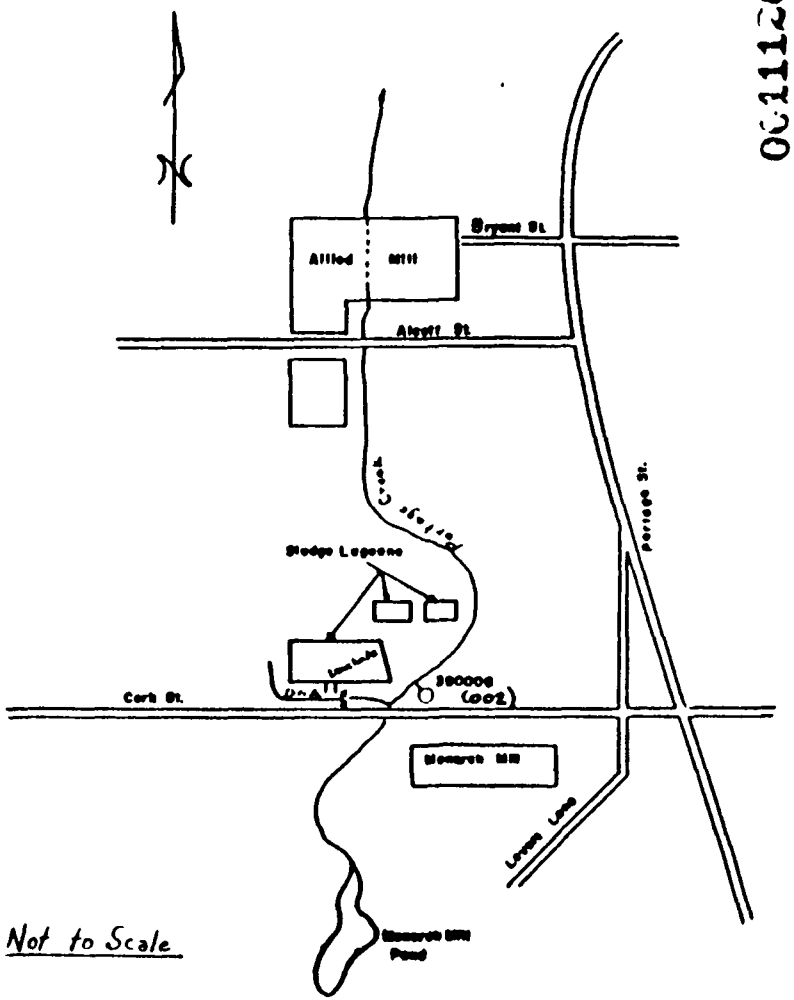
ALLIED PAPER MILLS
KALAMAZOO



Not to Scale

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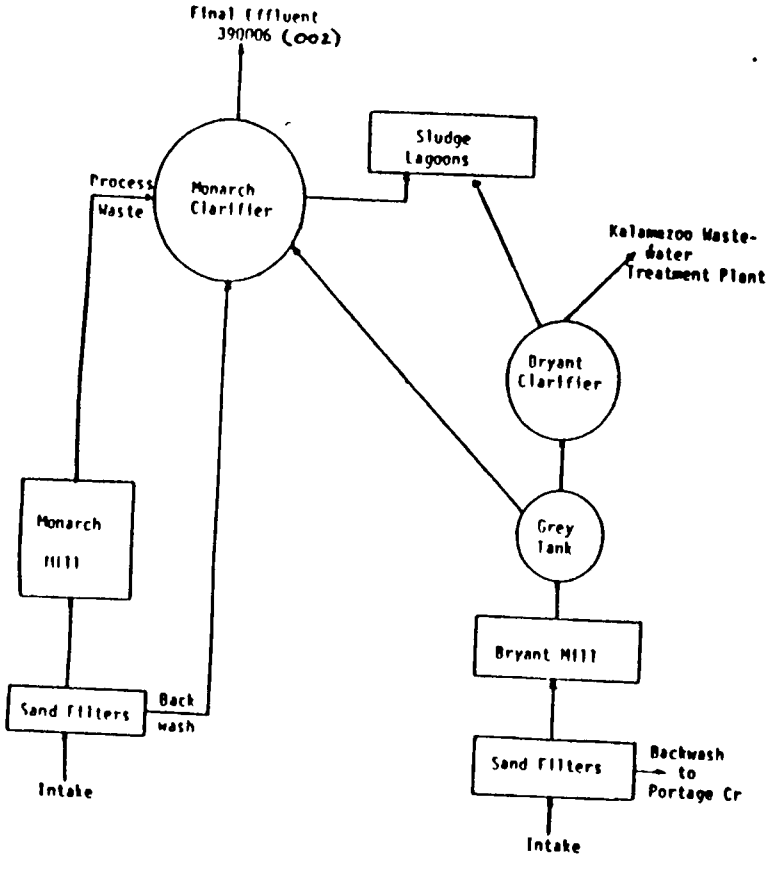

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DAILY AVERAGE FLOWS 1983

FRESH WATER

	MILL C	MILL D	POWER PLANT	BACK WASH	TOTAL
JANUARY	0.645	1.502	0.187	0.306	2.640
FEBRUARY	0.517	1.553	0.196	0.261	2.530
MARCH	0.517	1.588	0.187	0.414	2.694
APRIL	0.599	1.487	0.186	0.551	2.824
MAY	0.653	1.502	0.180	0.571*	2.568
JUNE	0.660	1.482	0.173	—	2.316
JULY	0.621	1.419	0.158	—	2.199
AVERAGE	0.602	1.505	0.181		2.539

WASTE WATER

	PORTAGE CREEK	CITY	RECYCLE	TOTAL
JANUARY	0.466	1.372	0.806	2.644
FEBRUARY	0.481	1.452	0.568	2.501
MARCH	0.620	1.526	0.550	2.696
APRIL	0.616	1.727	0.613	2.956
MAY	0.515	2.074	0.594	3.183
JUNE	0.459	2.019	0.591	3.069
JULY	0.441	2.143	0.569	3.134
AVERAGE	0.514	1.759	0.613	2.883

Mill: Monarch Division Location: Kalamazoo, MI

	Year(s) of Initial Startup	Year(s) of Waste Significant Modification or Permanent Shutdown
c. Paper Machine Rebuild(s)		
d. Added Stock Prep. System		
e. Added Broke Storage		
f. Elimination of Paper Machine(s)		
g. Other (Please List)		
Deinking Operation		Shut Down - 1957

SA 033950

Mill: Monarch Division Location: Kalamazoo, MI

B. Products (continued)	Average Daily Air Dry* Tons/day	Maximum Day Air Dry* Tons/day	Maximum Month Air Dry* Tons/day
22. Recycled Paperboard NOT APPLICABLE			
a. Linerboard			
b. Corrugating			
c. Chip & Filler Board			
d. Folding			
e. Set-Up			
f. Gypsum Wall Board			
g. Other			
23. Construction Paper and Board	NOT APPLICABLE		
a. Construction Paper			
b. Wet Machine Board			
c. Insulating Board			
d. Hard Pressed Board			
e. Other			

*Measured at the winder or pulp dryer.

SA 033956

Mill: Monarch Division

Location: Kalamazoo, MI

III. PROCESS RAW MATERIALS

A. Total Mill Fiber Supply - Please provide the average tons/day for the year and quarters indicated below:

	1976 Quarter			
	1st	2nd	3rd	4th
24. Wastepaper NOT APPLICABLE				
a. Mixed Wastepaper				
b. Boxboard Cuttings				
c. No. 1 News				
d. Special News				
e. Fibre Containers				
f. Corrugated				
g. Corrugated Cuttings				
h. Kraft Bags				
i. Kraft Cuttings				
j. Groundwood Substitutes (coated)				
k. Groundwood Substitutes (uncoated)				
l. White Shavings				
m. Colored Ledger				
n. Tab Cards				

SA 033957

Mill: Monarch Division

Location: Kalamazoo, MI

	1976 Quarter			
	1st	2nd	3rd	4th
o. Colored Kraft Substitutes				
p. White Ledger				
q. Bleached Pulp Substitutes				
r. Specialty Grades				
s. Other NOT APPLICABLE				

25. Other

SA 033958

Mill: Monarch Division Location: Kalamazoo, MI

B. Chemicals and Other Raw Materials

The following list of purchased chemicals and raw materials should be used to indicate their use in the mill process and/or process maintenance work. If a chemical is used, please circle the appropriate answer. Two answers should be marked for each numbered chemical or raw material used. The following answers are possible: (a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year is used; (d) Less than 500 lb/year is used. For some chemicals, a third answer may be marked. For chemicals applied to the surface of the formed paper, mark answer (e) surface application. If (e) is not marked the chemical will be assumed to be used internally (combined with the stock) unless the specific type of chemical would indicate otherwise (i.e., cleaners and detergents).

Adhesives

26. Animal Glue
(a) (b) (c) (d) (e)

27. Casein
(a) (b) (c) (d) (e)

28. Polyvinyl Acetate
(a) (b) (c) (d) (e)

29. Starch
(a) (b) (c) (d) (e)

30. Styrene-Butadiene
(a) (b) (c) (d) (e)

Other

31. _____
(a) (b) (c) (d) (e)

32. _____
(a) (b) (c) (d) (e)

33. _____
(a) (b) (c) (d) (e)

34. Alum
(a) (b) (c) (d) (e)

35. Ammonia
(a) (b) (c) (d) (e)

36. Ammonium Hydroxide
(a) (b) (c) (d) (e)

37. Amorphous Waxes
(a) (b) (c) (d) (e)

38. Asphalt
(a) (b) (c) (d) (e)

39. Binder
(a) (b) (c) (d) (e)

Bituminous Material
(list trade names)

40. _____
(a) (b) (c) (d) (e)

41. _____
(a) (b) (c) (d) (e)

Boil-Out Materials
(list trade name)

42. Ko-Chem-Paco Boil Out
(a) (b) (c) (d) (e)

43. _____
(a) (b) (c) (d) (e)

44. _____

45. Bronze Powders
(a) (b) (c) (d) (e)

46. Chlorine
(a) (b) (c) (d) (e)

47. Chlorine Dioxide
(a) (b) (c) (d) (e)

SA 033959

Mill: Beaver Division

Location: Kalamazoo, MI

Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application

Cleaners & Detergents
(list trade names)

48. Interlube-4022 Felt Cleaner
(a) (b) (c) (d) (e)

49. Syntech Products-Saf-Solv 2000
(a) (b) (c) (d) (e)

50. _____
(a) (b) (c) (d) (e)

Coating Adhesive
(list types)

51. _____
(a) (b) (c) (d) (e)

52. _____
(a) (b) (c) (d) (e)

53. _____
(a) (b) (c) (d) (e)

54. Crystalline Waxes
(a) (b) (c) (d) (e)

Cutting Fluids
(list types)

55. _____
(a) (b) (c) (d) (e)

56. _____
(a) (b) (c) (d) (e)

57. _____
(a) (b) (c) (d) (e)

Defoamers
(list trade names)

58. Ko-Chem DF-11
(a) (b) (c) (d) (e)

59. _____
(a) (b) (c) (d) (e)

60. _____
(a) (b) (c) (d) (e)

Degreasers
(list trade names)

61. DuBois DuStripp
(a) (b) (c) (d) (e)

62. Beaver Research Product
(a) (b) (c) (d) (e)

63. _____
(a) (b) (c) (d) (e)

Dispersants
(list trade names)

64. Syntech Products-Vacuum Pump Inhibitor
(a) (b) (c) (d) (e)

65. Globe Chemical-Vacuum Pump Inhibitor
(a) (b) (c) (d) (e)

66. _____
(a) (b) (c) (d) (e)

Dyes (list types)

67. Solar Blue RMN
(a) (b) (c) (d) (e)

68. _____
(a) (b) (c) (d) (e)

69. _____
(a) (b) (c) (d) (e)

Fillers

70. Diatomaceous Earth
(a) (b) (c) (d) (e)

71. Clay
(a) (b) (c) (d) (e)

72. Calcium Carbonate
(a) (b) (c) (d) (e)

73. Talc
(a) (b) (c) (d) (e)

74. TiO_2
(a) (b) (c) (d) (e)

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Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application.

Other

75. Cl-o-Lite 100
(a) (b) (c) (d) (e)

76. _____
(a) (b) (c) (d) (e)

77. _____
(a) (b) (c) (d) (e)

Fungicides
(list trade names)

78. _____
(a) (b) (c) (d) (e)

79. _____
(a) (b) (c) (d) (e)

80. _____
(a) (b) (c) (d) (e)

81. Hydrogen Peroxide
(a) (b) (c) (d) (e)

82. Oil Base Ink
(a) (b) (c) (d) (e)

83. Water Base Ink
(a) (b) (c) (d) (e)

Latex (list types)

84. _____
(a) (b) (c) (d) (e)

85. _____
(a) (b) (c) (d) (e)

86. _____
(a) (b) (c) (d) (e)

87. Lime
(a) (b) (c) (d) (e)

88. Limestone
(a) (b) (c) (d) (e)

89. Magnesium Hydroxide
(a) (b) (c) (d) (e)

90. Magnesium Oxide
(a) (b) (c) (d) (e)

91. Oils
(a) (b) (c) (d) (e)

Organic Solvents

92. Alcohols
(a) (b) (c) (d) (e)

93. Esters
(a) (b) (c) (d) (e)

94. Ketones
(a) (b) (c) (d) (e)

Other

95. _____
(a) (b) (c) (d) (e)

96. _____
(a) (b) (c) (d) (e)

97. _____
(a) (b) (c) (d) (e)

Pigments

98. Cadmium Types
(a) (b) (c) (d) (e)

99. Chromium Types
(a) (b) (c) (d) (e)

100. Copper Types
(a) (b) (c) (d) (e)

101. Lead Types
(a) (b) (c) (d) (e)

102. Luminescent Types
(a) (b) (c) (d) (e)

103. Mercury Types
(a) (b) (c) (d) (e)

SR 033961

Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application.

104. Organic Types
(a) (b) (c) (d) (e)

105. Zinc Types
(a) (b) (c) (d) (e)

Other

106. Iron Oxide
(a) (b) (c) (d) (e)

107. _____
(a) (b) (c) (d) (e)

108. _____
(a) (b) (c) (d) (e)

Plasticizers (list types)

109. _____
(a) (b) (c) (d) (e)

110. _____
(a) (b) (c) (d) (e)

111. _____
(a) (b) (c) (d) (e)

Polymers

112. Cellulose Acetate
(a) (b) (c) (d) (e)

113. Cyclized Rubber
(a) (b) (c) (d) (e)

114. Ethyl Cellulose
(a) (b) (c) (d) (e)

115. Nitrocellulose
(a) (b) (c) (d) (e)

116. Polyethylene
(a) (b) (c) (d) (e)

Other

117. Upgrade Chemicals B-64
(a) (b) (c) (d) (e)

118. Hercules Reten 304
(a) (b) (c) (d) (e)

119. _____
(a) (b) (c) (d) (e)

Preservatives

120. Borax
(a) (b) (c) (d) (e)

121. Formaldehyde
(a) (b) (c) (d) (e)

122. Glyoxal
(a) (b) (c) (d) (e)

Other

123. Dowicide G
(a) (b) (c) (d) (e)

124. _____
(a) (b) (c) (d) (e)

125. _____
(a) (b) (c) (d) (e)

126. Resins (wet strength)
(a) (b) (c) (d) (e)

Resins (other)
(list types)

127. Scripset 700
(a) (b) (c) (d) (e)

128. _____
(a) (b) (c) (d) (e)

129. _____
(a) (b) (c) (d) (e)

130. Rosin Size
(a) (b) (c) (d) (e)

131. Salt or Brine (NaCl)
(a) (b) (c) (d) (e)

132. Salt Cake
(a) (b) (c) (d) (e)

Location:

SR 033962

Chemicals and Other Raw Materials (Cont'd.)

(a) Mill process chemical; (b) Used for process maintenance work; (c) More than 500 lb/year used; (d) Less than 500 lb/year used; (e) Surface application.

Slimicides (Biocides)
(list trade names)

133. Upjohn Chemical L.S. 91
(a) (b) (c) (d) (e)

134. _____
(a) (b) (c) (d) (e)

135. _____
(a) (b) (c) (d) (e)

136. Sodium Bisulfite
(a) (b) (c) (d) (e)

137. Sodium Aluminate
(a) (b) (c) (d) (e)

138. Sodium Carbonate
(a) (b) (c) (d) (e)

139. Sodium Chlorate
(a) (b) (c) (d) (e)

140. Sodium Hydrosulfite
(a) (b) (c) (d) (e)

141. Sodium Hydroxide
(a) (b) (c) (d) (e)

142. Sodium Silicate
(a) (b) (c) (d) (e)

143. Sodium Sulfide
(a) (b) (c) (d) (e)

144. Sodium Sulfite
(a) (b) (c) (d)

145. Sulfur
(a) (b) (c) (d) (e)

146. Sulfur Dioxide
(a) (b) (c) (d) (e)

147. Sulfuric Acid
(a) (b) (c) (d) (e)

148. Synethetic Size
(a) (b) (c) (d) (e)

149. TSPP
(a) (b) (c) (d) (e)

150. Varnish
(a) (b) (c) (d) (e)

Varnish Remover
(list trade names)

151. _____
(a) (b) (c) (d) (e)

152. _____
(a) (b) (c) (d) (e)

153. _____
(a) (b) (c) (d) (e)

Washing Aids (list types)

154. _____
(a) (b) (c) (d) (e)

155. _____
(a) (b) (c) (d) (e)

156. _____
(a) (b) (c) (d) (e)

157. Zinc Hydrosulfite
(a) (b) (c) (d) (e)

Other

158. DuBois Chemical MPG2 Grease
(a) (b) (c) (d) (e)

159. _____
(a) (b) (c) (d) (e)

160. _____
(a) (b) (c) (d) (e)

161. _____
(a) (b) (c) (d) (e)

162. _____
(a) (b) (c) (d) (e)

163. _____
(a) (b) (c) (d) (e)

164. _____
(a) (b) (c) (d) (e)

Location:

SA 033963

Mill: Monarch Division Location: Kalamazoo, MI

IV. MANUFACTURING PROCESS AND INTERNAL POLLUTION CONTROL PRACTICES

A. General

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

B. Paper Mill

182. How many paper machines does mill have?

2

183. Give the number of paper machines the mill has which utilize savealls, or similar devices, for fiber recovery.

2

184. Give the number of paper machines the mill has which have savealls, or similar devices, that permit reuse of clarified water.

2

C. Additional Information

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

Mill: Monarch Division Location: Kalamazoo, MI

V. WATER USAGE AND EFFLUENT TREATMENT PRACTICES

Instructions for Completing Section V

Section V requests information on the mill's wastewater treatment practices. In Section VIII a general schematic of the effluent treatment system is requested. You have the option of providing any of the data requested in Section V on the schematic. If you do this, please indicate on the question(s) involved that the data is presented on the schematic.

A. Water Usage

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

B. Background Data

211. Indicate the method(s) of disposal of the mill wastewater.

(a) Direct

(b) Indirect

(c) Self-contained

(d) Other (please describe) _____

212. Please give the year in which the following portions of the mill's existing wastewater treatment system were started up.

	Year of Startup
a. Primary Treatment System	1953
b. Secondary Treatment System	

C. Indirect Discharger (discharge to a POTW) please provide the following information:

215. Is raw wastewater pretreated externally prior to discharge to the POTW? (Pretreatment is considered to be any treatment device external from the mill production processes which is utilized prior to a primary and secondary treatment system, or prior to discharge by an indirect discharger to a POTW.)

(a) Yes Not Applicable

(b) No

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Mill: Monarch Division Location: Kalamazoo, MI

216. Give the treatment process used by the POTW to which your mill discharges. (Include biological and physical-chemical treatment if applicable)

(a) Activated sludge

Not Applicable

(b) Aerated lagoon

(c) Oxidation ditch

(d) Trickling filter

(e) None

(f) Other (indicate type) _____

219. Give the preliminary treatment method used, if any.

(a) Neutralization Not Applicable

(b) Screening (indicate type used) _____

(c) Other (please describe) _____

221. Indicate the primary treatment method used, if applicable.

(a) Clarifier Not Applicable

(b) Sedimentation lagoon

(c) Mechanically cleaned sedimentation lagoon

(d) Other (please describe) _____

(e) Not applicable

225. Give the type of biological treatment used, if applicable.

(a) Storage oxidation basin Not Applicable

(b) Aerated Stabilization basin

(c) Activated sludge (air or oxygen)

(d) Other (please describe) _____

(e) Not applicable

Mill: Monarch Division Location: Kalamazoo, MI

D. Direct Discharger please provide the following information:

228. Is wastewater discharge continuous or non-continuous (effluent stored and discharged when receiving water conditions allow) when production facilities are operating?

(a) Continuous

(b) Non-continuous - daily

(c) Non-continuous - seasonally/intermittent

E. Preliminary Treatment (Direct Discharger) NOT APPLICABLE

230. Give the preliminary treatment method used, if any.

(a) Neutralization

(b) Screening (indicate type used) _____

(c) Other (please describe) _____

F. Primary Treatment (Direct Discharger)

232. Indicate the method used for primary treatment.

(a) Clarifier

(b) Sedimentation lagoon

(c) Mechanically cleaned sedimentation lagoon

(d) Other (please describe) _____

G. Biological Treatment (Direct Discharger) NOT APPLICABLE

236. Give the type of biological treatment used.

(a) Storage oxidation basin

(b) Aerated stabilization basin

(c) Activated sludge (air or oxygen)

(d) Other (please describe) _____

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Mill: Monarch Division Location: Kalamazoo, MI

H. Secondary Solids Removal

237. If secondary clarification is used, what is the method used?

(a) Clarifier NOT APPLICABLE

(b) Reactor clarifier

(c) Settling basin

(d) Other (please indicate) _____

238. Is a holding pond utilized after secondary treatment? NOT APPLICABLE

(a) Yes

(b) No

I. Spray Irrigation

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

J. Sludge Handling and Disposal Underflow from Clarifier

240. Indicate the method used for sludge disposal.

(a) Lagooning For dewatering

(b) Landfill Ultimate disposal lagoon solids

(c) Hog fuel boiler

(d) Other (please describe) _____

K. Foam Control

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

L. Cost Information

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

SA 033968

Mill: Monarch Location: Kalamazoo, Mi

M. Site Conditions and Availability of Land

NO QUESTIONS FOR THIS ITEM ARE TO BE ANSWERED IN PART I.

N. Wastewater Characteristics

251-254. Give the (1976) wastewater loads indicated below:

	Indirect and Direct Dichargers Please Answer		Direct Discharger Only Please Answer	
	(251)	(252)	(253)	(254)
	Paper Mill	Total Raw Wastewater	Secondary Treatment System Effluent	Final Effluent
a. Flow, MGD				
(1) Average Day	2.042	2.659		2.659
(2) Maximum Day	3.188	3.650		3.650
(3) Maximum Month	2.242	2.697		2.699
b. BOD, lbs/day				
(1) Average Day	2,116	2,396		362
(2) Maximum Day	4,500	5,274		498
(3) Maximum Month	2,133	2,415		366
c. TSS, lbs/day				
(1) Average Day	9,930	9,150		145
(2) Maximum Day	20,887	20,962		483
(3) Maximum Month	10,589	10,678		182

IV. FUEL AND ENERGY

NO QUESTIONS FOR THIS SECTION ARE TO BE ANSWERED IN PART I.

VII. PRIORITY POLLUTANTS

See Next Page

VIII. PROCESS SCHEMATICS

NO QUESTIONS FOR THIS SECTION ARE TO BE ANSWERED IN PART I.

Mill: Monarch Division Location: Kalamazoo, MI

As per E. C. Jordan Co. letter of October 18, 1977, this section will be returned with Part II.

VII. PRIORITY POLLUTANT COMPOUNDS

Please fill in the following information for those priority pollutants which, to your knowledge, are in your raw water supply, or used, or generated in any of the processes in the mill (refer to the following pages for the priority pollutant list). Use the number shown to identify the compound.

It should be noted that many mills may be using quantities of the listed chemicals as additives, cleaning solution, or solvents which are purchased and referred to by a trade name. Please supply trade names of all proprietary type chemicals used in the mill.

Compound Number or Trade Name	Process Where Compound is Used or Generated	Describe Use		Sampling or Monitoring Program for Compound (Yes or No)
		Quantity	Frequency	

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PRIORITY POLLUTANTS

1. *acenaphthene
2. *acrolein
3. *acrylonitrile
4. *benzene
5. *benzidine
6. *carbon tetrachloride (tetrachloromethane)

*CHLORINATED BENEZENES (other than dichlorobenzenes)

7. chlorobenezene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene

*CHLORINATED ETHANES

10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane

*CHLOROALKYL ETHERS

17. bis(chloromethyl) ether
18. bis(2-chloroethly) ether
19. 2-chloroethyl vinyl ether (mixed)

*CHLORINATED NAPHTALENE

20. 2-chloronaphthalene

*CHLORINATED PHENOLS (Other than those listed elsewhere; includes chlorinated cresols)

21. 2,4,6-trichlorophenol
22. parachlorometa cresol
23. *chloroform (trichloromethane)
24. *2-chlorophenol

*DICHLOROBENZENES

25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene

*DICHLOROBENZIDINE

28. 3,3'-dichlorobenzidine

*DICHLOROETHYLENES

29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. *2,4-dichlorophenol

*DICHLOROPROPANE AND DICHLOROPROPENE

32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloroproper
34. *2,4-dimethylphenol

*DINITROTOLUENE

35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. *1,2-diphenylhydrazine
38 *ethylbenzene
39. *fluoranthene

*Specific compounds and chemical classes as listed in the consent degree.

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PRIORITY POLLUTANTS (continued)

*HALOETHERS (other than those listed elsewhere)

40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl) ether
43. bis(2-chloroethoxy) methane

*HALOMETHANES (other than those listed elsewhere)

44. methylene chloride (dichloromethane)
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane
50. dichlorodifluoromethane
51. chlorodibromomethane
52. *hexachlorobutadiene
53. *hexachlorocyclopentadiene
54. *isophorone
55. *naphthalene
56. *nitrobenzene

*NITROPHENOLS

57. 2-nitrophenol
58. 4-nitrophenol
59. *2,4-dinitrophenol
60. 4,6-dinitro-o-cresol

*NITROSAMINES

61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. *pentachlorophenol
65. *phenol

*PHTHALATE ESTERS

66. bis(2-ethylhexyl) phthalate
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
70. diethyl phthalate

*POLYNUCLEAR AROMATIC HYDROCARBONS

72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthe)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluroene
81. phenathrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. indeno (1,2,3-cd)pyrene (2,3-o-phenylenepyrene)
84. pyrene
85. *tetrachloroethylene
86. *toluene
87. *trichloroethylene
88. *vinyl chloride (chloroethylene)

PESTICIDES AND METABOLITES

89. *aldrin
90. *dieldrin
91. *chlordane (technical mixture & metabolites)

*Specific compounds and chemical classes as listed in the consent degree.

SR 033972

PRIORITY POLLUTANTS (continued)

***DDT AND METABOLITES**

92. 4,4'-DDT
93. 4,4'-DDE (p,p'-DDX)
94. 4,4'-DDD (p,p'-TDE)

***ENDOSULFAN AND METABOLITES**

95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate

***ENDRIN AND METABOLIES**

98. endrin
99. endrin aldehyde

***HEPTACHLOR AND METABOLITES**

100. heptachlor
101. heptachlor epoxide

***HEXACHLOROCYCLOHEXANE (all isomers)**

102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta

***POLYCHLORINATED BIPHENYLS (PCB's)**

106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)

113. *Toxaphene
114. *Antimony (Total)
115. *Arsenic (Total)
116. *Asbestos (Fibrous)
117. *Beryllium (Total)
118. *Cadmium (Total)
119. *Chromium (Total)
120. *Copper (Total)
121. *Cyanide (Total)
122. *Lead (Total)
123. *Mercury (Total)
124. *Nickel (Total)
125. *Selenium (Total)
126. *Silver (Total)
127. *Thallium (Total)
128. *Zinc (Total
129. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

ADDITIONAL COMPOUNDS

130. Abietic Acid
131. Deyhydroabietic Acid
132. Isopimaric Acid
133. Pimaric Acid
134. Oleic Acid
135. Linoleic Acid
136. Linolenic Acid
137. 9, 10 - Epoxystearic Acid
138. 9, 10 - Dichlorostearic Acid
139. Monochlorodehydroabietic Acid
140. Dichlorodehydroabietic Acid
141. 3, 4, 5 - Trichloroguaiacol
142. Tetrachloroguaiacol

*Specific compounds and chemical classes as listed in the consent degree.

SH 033973

PRIORITY POLLUTANTS (continued)

***DDT AND METABOLITES**

92. 4,4'-DDT
93. 4,4'-DDE (p,p'-DDX)
94. 4,4'-DDD (p,p'-TDE)

***ENDOSULFAN AND METABOLITES**

95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate

***ENDRIN AND METABOLIES**

98. endrin
99. endrin aldehyde

***HEPTACHLOR AND METABOLITES**

100. heptachlor
101. heptachlor epoxide

***HEXACHLOROCYCLOHEXANE (all isomers)**

102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta

***POLYCHLORINATED BIPHENYLS (PCB's)**

106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)

113. *Toxaphene
114. *Antimony (Total)
115. *Arsenic (Total)
116. *Asbestos (Fibrous)
117. *Beryllium (Total)
118. *Cadmium (Total)
119. *Chromium (Total)
120. *Copper (Total)
121. *Cyanide (Total)
122. *Lead (Total)
123. *Mercury (Total)
124. *Nickel (Total)
125. *Selenium (Total)
126. *Silver (Total)
127. *Thallium (Total)
128. *Zinc (Total
129. 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

ADDITIONAL COMPOUNDS

130. Abietic Acid
131. Deyhydroabietic Acid
132. Isopimaric Acid
133. Pimaric Acid
134. Oleic Acid
135. Linoleic Acid
136. Linolenic Acid
137. 9, 10 - Epoxystearic Acid
138. 9, 10 - Dichlorostearic Acid
139. Monochlorodehydroabietic Acid
140. Dichlorodehydroabietic Acid
141. 3, 4, 5 - Trichloroguaiacol
142. Tetrachloroguaiacol

*Specific compounds and chemical classes as listed in the consent degree.

SA 033974

PART I

CONFIDENTIALITY CLAIMED FOR THE FOLLOWING

Question Number	Question Number	Question Number	Question Number	Question Number	Question Number	Question Number
2A 3,4,8						
13 A,F						
15 A, C						
42						
48						
49						
61						
62						
64						
65						
72						
73						
75						
92						
106						
117						
118						
127						
133						
148						
158						
251 a,b,c						
252 a,b,c						
254 a,b,c						

ENVIRONMENTAL PROTECTION AGENCY
SURVEY FORM
PULP, PAPER, AND PAPERBOARD INDUSTRY

NON-INTEGRATED MILLS
PART II

I. MILL BACKGROUND DATA

A. Mill & Division Name: Bryant Division - Allied Paper, Inc.

Address: 2030 Portage St., Kalamazoo, MI ZIP: 49001

Telephone: 616 / 345-7131

Corporate Affiliation (if applicable) SCM Corporation

Contacts and Title: (Use an asterisk next to the responsible personnel completing the survey form)

E. J. Gilman	Vice President, Operations
*U. G. Stoeffler	Manager, Process Development

B. Age of Mill

1-2. DELETED - ANSWERED IN PART I

II. PRODUCTION INFORMATION

3-23. DELETED - ANSWERED IN PART I

III. PROCESS RAW MATERIALS

24-164. DELETED - ANSWERED IN PART I

000013

SA 030370

SA00030370

Mill: Bryant Location: Kalamazoo, MI

IV. MANUFACTURING PROCESS AND INTERNAL POLLUTION CONTROL PRACTICES

A. General

165. Give the typical production days per year 260

166. High level alarms - do chemical and stock tanks have operable high level alarms to prevent spills?

(a) Yes

(b) No

(c) To the extent possible

Explanation (if needed) On recent installations

167. pH or conductivity monitor of internal sewers - Do sewers have such devices to detect or divert spills?

(a) Yes

(b) No

(c) To the extent possible

Explanation (if needed)

168-181. Is the cooling water collected and reused from the following locations: Indicate answer using one of the following responses: (a) Yes; (b) No; (c) Seasonal; (d) To Extent Possible; (e) Not Applicable.

	a	b	c	d	e
168. Air Compressor Cooling Water		x			
169. Dryer Drainage Condensate Cooling				x	
170. Lube Oil Cooling		x			
171. Calendar Cooling Heat Exchangers					x
172. Rewinder Brake Cooling				x	

SA 030371

SA00030371

Mill: Bryant Location: Kalamazoo, MI

(a) Yes; (b) No; (c) Seasonal; (d) To Extent Possible; (e) Not Applicable

	a	b	c	d	e
173. Paper Machine Clutch Cooling					x
174. Cooling in Power Plant		x			
175. Feed Water Pump Bearings		x			
176. Power Plant I.D. Fan Bearings					x
177. Other Bearing Cooling		x			
178. Refiner Cooling		x			
179. Motor Control Center Cooling					x
180. Water Chiller					x
181. Air Conditioning					x

B. Paper Mill

182-184. DELETED - ANSWERED IN PART I

SA 030372

SA00030372

185-193. Please fill in the appropriate answers for each of your mill's paper machines. If you feel any answers require an explanation to assist in the proper analysis of each of the questions shown, please attach a sheet with the explanation(s). Be sure to correctly identify which question and which paper machine the explanation is for.

	Paper Machine																	
	#1		#2		#3		#4		#5		#6		#7		#8		#9	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
185. Is felt vacuum pump water reused?										X		X		X		X		X
186. White water showers - Are White water showers used on the paper machine for such purposes as wire cleaning or knock off showers?									X		X		X		X		X	
187. Reuse press effluent - Is the press effluent reused?										X		X		X		X		X
188. White water for vacuum pump sealing - Is white water used for vacuum pump sealing?									X		X		X		X		X	
189. White water storage for upsets and pulper dilution - Is excess white water, overflows from the main white water tank or the cloudy side of the saveall saved in a white water storage tank of sufficient size for charging and dilution at the pulpers?									X		X		X		X		X	
190. Does the mill have either four stages of cleaning or three stages of cleaning with elutriation in the paper mill?									X		X		X		X		X	
191. High pressure showers - Are high pressure showers (above 250 psig) used on the paper machine for wire cleaning?										X		X		X		X		X

SA00030373

	Paper Machine																			
	#1		#2		#3		#4		#5		#6		#7		#8		#9		#10	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
*192. High pressure showers - Are high pressure showers (above 250 psig) used on the paper machine for felt cleaning?										X		X		X		X				
**193. Is individual machine slush broke storall adequate to contain total machine production of stock (at couch) for a 30 minute period?										X		X		X		X		X		

* No felt showers

** Couch pit slush broke is continuously pumped to fiber recovery system so 30 min. storage is not needed.

SA00030374

Mill: Bryant Location: Kalamazoo, MI

194. Does the mill have a stock spill collection system, prior to external treatment facilities?

(a) Yes

(b) No

(c) Partial

195. If the answer to the preceding question is (a), describe the collection system's function.

(a) Collected and discharged to the sewer at a controlled rate

(b) Collected and reused in the process

(c) Other (please describe) _____

196. Give the frequency of waste significant grade changes; also, if possible, give the stock quantity sewered.

10 @ 600# each

197. Is the mill central storage of white water (a) and slush broke (b) adequate with regard to effluent discharge?

a. White Water

(a) Yes

(b) No

(c) To the extent possible

(Explanation, if needed) _____

b. Slush Broke

(a) Yes

(b) No

(c) To the extent possible

(Explanation, if needed) _____

SA 030375

SA00030375

Mill: Bryant Location: Kalamazoo, MI

198. Are special provisions made for spills, screen rejects, and excess materials from coating or sizing systems?

(a) Yes

(b) No

(c) Limited

199. Does the mill employ organic solvent coating or saturating operations?

(a) Yes

(b) No

200. If yes, please give the type and quantities (lbs/day) of organic solvent used.

_____

_____

201. Give the average daily organic solvent coated or saturated paper produced.

_____ tons/day

SA 030376

SA00030376

Mill: Bryant Location: Kalamazoo, MI

202. Please indicate effluent from the combined papermachine facilities as follows: (i.e., total flow from all machines)

Waste Source	Volume GPM		Suspended Solids (if applicable) lbs/day
a. Centricleaner and machine screen rejects	80		9724
b. Couch pit, seal box, and any other unclarified whitewater overflows	very little		very little
c. Thick stock spills, dumps, washups from stock preparation area and machine	very little	gal/day	very little
d. Excess clarified whitewater	749		3,395
e. Cloudy water from vacuum systems, or pump sealing applications	314		5,042
f. Clear water discharges i.e., cooling services, condensate, other non-process services	268		0
g. Other effluent sources not included above	226		3,060
h. Total papermill effluent	1,637		21,219

i. Is (f) discharged via process sewer or separately? (Circle answer)

YES NO

"Yes" answer means (f) discharged via process sewer

Additional Information

203. Does the mill have a program for disposal of old electrical transformers?

(a) Yes

(b) No

204. Please give the number of people employed at your mill. 344

SA 030377

SA00030377

Mill: Bryant Location: Kalamazoo, MI

V. WATER USAGE AND EFFLUENT TREATMENT PRACTICES

Instructions for Completing Section V

Section V requests information on the mill's wastewater treatment practices. In Section VIII a general schematic of the effluent treatment system is requested. You have the option of providing any of the data requested in Section V on the schematic. If you do this, please indicate on the question(s) involved that the data is presented on the schematic.

A. Water Usage

205. Indicate the source and amount of process water.

(a) Surface (i.e., river, lake or reservoir) 2.570 MGD

(b) Groundwater _____ MGD

(c) Other (please describe) _____ _____ MGD

206. Does the quality of the raw water limit the reuse of water in this mill?

(a) Yes - explain _____

(b) No

207. Indicate the source and amount of the mill's cooling water.

(a) Surface 1.083 MGD

(b) Groundwater _____ MGD

(c) Other (please describe) _____ _____ MGD

208. Indicate the source and amount of the mill's boiler feed water.

(a) Surface 0.10 MGD

(b) Groundwater _____ MGD

(c) Other (please describe) _____ _____ MGD

SA 030378

SA00030378

Mill: Bryant Location: Kalamazoo, MI

209. Describe treatment used for boiler feed water conditioning.

Softner is the hot lime, soda ash, caustic and phoschate type.

210. Give the disposal method now employed for boiler blowdown water.

(a) Sewered to treatment plant

(b) Directly discharged

(c) Directly discharged with pH adjustment

(d) Directly discharged after cooling

(e) Other (please describe) _____

B. Background Data

211-212. DELETED - ANSWERED IN PART I

213. How is cooling water disposed?

(a) Separate discharge to receiving stream.

(b) Combined with process waters before treatment.

(c) Combined with treated process waters.

(d) Recycled.

C. Indirect Discharger please provide the following information:

* 214. Name and location of POTW which handles your wastewater.

Kalamazoo Municipal Waste Treatment plant

215-216. DELETED - ANSWERED IN PART I

217. Are there specific pretreatment requirements of limits upon pollutant parameters imposed by the POTW system to which you discharge?

(a) Yes

(b) No

* As noted in Part I, part of effluent from Bryant Clarifier is discharged to a POTW and part to the influent of Monarch Clarifier as shown in "[illegible]" Process Schematic. However, for this portion of the survey the Bryant Division is considered an indirect discharger.

SA 030379

SA00030379

POLLUTION CONTROL SPEECH

PRESENTED TO ALLIED SUPERVISORY MEETING - JULY 17, 1979

U. G. STOEFFLER

INTRODUCTION

THE PAPER INDUSTRY, THE 5TH LONGEST IN THE U.S., BY THE VERY NATURE OF ITS PROCESS OF PAPER MAKING USES A LOT OF WATER. WHEN YOU USE GREAT QUANTITIES OF WATER YOU ALSO DISCHARGE LARGE AMOUNTS OF WATER. IN EARLY TIMES THE PAPER INDUSTRY DID NOT SHOW ENOUGH CONCERN IN THE TREATMENT OF THESE DISCHARGES. ALLIED FOR MORE THAN 30 YEARS HAS BEEN CONCERNED WITH ITS WASTE FLOWS. DURING THESE YEARS THE TECHNICAL DEPARTMENT HAS BEEN RESPONSIBLE FOR THE OPERATION OF WASTE TREATMENT FACILITIES AND HAS CARRIED OUT ALL THE RESEARCH AND DEVELOPMENT ON WASTE TREATMENT PROJECTS. IN THESE YEARS WE HAVE HAD GOOD TECHNICAL PERSONNEL INVOLVED IN THE FIELD LIKE BILL KIRKPATRICK, JOHN DAM, WAYNE KENDRICK, BOB LEVY AND ROY WILLIE. SOME 20 YEARS AGO I INHERITED THE RESPONSIBILITY FOR ALLIED'S WASTE TREATMENT FACILITIES. WHEN MENTIONING ALLIED PERSONNEL AND WASTE TREATMENT, ONE NAME STANDS OUT ABOVE ALL THE REST, JACK GILMAN, A MAN OF GREAT INTEGRITY, VISION AND LEADERSHIP. HE ALWAYS CHARTED A WISE COURSE AND I THANK HIM FOR THE HELP AND DIRECTION HE GAVE ME OVER THE YEARS. TODAY, JOHN ROTH WORKS FULLTIME AT OUR WASTE TREATMENT FACILITIES, JOHN STIEGEMEYER IS THE BACKUP OPERATOR AND SUBSTITUTES FOR JOHN ROTH ON SOME WEEKENDS. MARTIN SMITH, SENIOR PROJECT LEADER, IS MY RIGHT HAND MAN IN ADMINISTERING THE PROGRAM, AND WE ALL GET MANAGEMENT DIRECTION FROM FRED HARRISON, TOM FLANAGAN AND DAVE KIRK. ERNIE KLIMCZAK HAS ALWAYS MAINTAINED AN INTEREST AND KNOWLEDGE IN THIS FIELD. A STATE OF MICHIGAN LAW REQUIRES THAT EACH INDUSTRIAL WASTE WATER FACILITY HAVE A CERTIFIED OPERATOR. ALLIED HAS FIVE IN THE B-2A CLASS: ROTH, STIEGEMEYER,

SMITH, PER HAGARD AND MYSELF. CERTIFICATION HAS TO BE RENEWED EVERY 5 YEARS.

DEFINITIONS

BEFORE WE GET INTO A DESCRIPTION OF OUR WASTE TREATMENT FACILITIES, IT IS ADVISABLE TO DEFINE SOME TERMS THAT ARE COMMONLY ASSOCIATED WITH THIS FIELD AND ARE NECESSARY TO UNDERSTAND THE FUNCTIONS WE WILL DESCRIBE.

PS 92-500-FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 (OCTOBER) ARE THE MOST COMPLICATED PIECE OF LEGISLATION EVER PASSED. THERE ARE DIVERSE SECTIONS OF THIS LAW COVERING MANY AREAS OF POLLUTION CONTROL. THIS LAW HAS BEEN AMENDED AS PER RECOMMENDATIONS FROM THE WATER QUALITY COMMISSION CHAIRED BY FORMER VICE PRESIDENT ROCKEFELLER.

N.P.D.E.S. PERMIT - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM. ANYONE DISCHARGING INTO A NAVIGABLE STREAM OR ITS TRIBUTARY IS REQUIRED TO HAVE A N.P.D.E.S. PERMIT FOR EACH DISCHARGE. THE U.S. ENVIRONMENTAL PROTECTION AGENCY HAS GRANTED MICHIGAN'S DEPARTMENT OF NATURAL RESOURCES (DNR) THE AUTHORITY TO ISSUE THESE NPDES PERMITS IN MICHIGAN.

B.O.D. - BIOCHEMICAL OXYGEN DEMAND. A MEASURE OF THE AMOUNT OF OXYGEN CONSUMED IN BIOLOGICAL PROCESSES THAT BREAK DOWN ORGANIC MATTER IN WATER, A MEASURE OF THE ORGANIC POLLUTANT LOAD.

D.O. - DISSOLVED OXYGEN FREELY AVAILABLE IN WATER AND NECESSARY FOR AQUATIC LIFE AND THE OXIDATION OF ORGANIC MATERIALS.

P.P.M. - PARTS PER MILLION OR MILLIGRAMS PER LITER - UNITS USED TO EXPRESS THE STRENGTH OF B.O.D., D.O. OR OTHER POLLUTANTS. TO UNDERSTAND HOW MINUTE IS A PPM, A LAYMAN'S DESCRIPTION IS A JIGGER OF VERMOUTH IN A RAILROAD TANK CAR OF GIN. STRENGTHS OF HEAVY METALS ARE USUALLY EXPRESSED AS P.P.B. - PARTS PER BILLION (1.5 INCHES AS COMPARED WITH THE CIRCUMFERENCE OF THE EARTH).

INFLUENT-EFFLUENT - SUBSTANCE OR FLOW INTO AND FROM A TREATMENT PLANT.

T.O.C. - TOTAL ORGANIC CARBON A PARAMETER THAT ALSO EXPRESSES ORGANIC POLLUTANT LOAD.

SLUDGE - THE SOLIDS REMOVED FROM WASTE WATER BY SEDIMENTATION.

SUSPENDED SOLIDS - THE SMALL PARTICLES OF SOLID POLLUTANTS (IN OUR CASE CELLULOSIC MATERIALS AND PIGMENTS) IN WASTE WATER THAT RESIST SEDIMENTATION BY CONVENTIONAL MEANS.

TURBIDITY - EXPRESSED AS J.T.U. (JACKSON TURBIDITY UNITS) IS MATERIALS SUSPENDED IN WATER TO DISTURB THE PENETRATION OF LIGHT.

DROUGHT FLOW - HYDROLOGISTS ESTIMATE OF THE LOW FLOW THAT MAY OCCUR FOR SEVEN DAYS EVERY 10 YEARS. ALL D.O. WATER QUANTITY STANDARDS ARE BASED ON THE DROUGHT FLOW.

C.F.S. - CUBIC FEET PER SECOND MEASUREMENT OF LOW IN A STREAM. PORTAGE CREEK HAS A DROUGHT FLOW OF 29.3 C.F.S.

TOXIC POLLUTANT - A POLLUTANT OR COMBINATION OF POLLUTANTS WHICH EITHER DIRECTLY OR INDIRECTLY CAUSE DEATH, DISEASE, CANCER, GENETIC MUTATIONS, PHYSIOLOGICAL MALFUNCTIONS AND PHYSICAL DEFORMITIES.

M.G.D. - MILLION GALLONS PER DAY.

HISTORY

IN THE LATE FORTIES, THE PAPER INDUSTRY BANDED TOGETHER TO FORM THE NATIONAL COUNCIL FOR STREAM IMPROVEMENT FOR THE PULP AND PAPER INDUSTRY, (LATER EXPANDED TO AIR & STREAM IMPROVEMENT). THE ONLY RESEARCH ORGANIZATION DEALING WITH POLLUTION, TOTALLY SUPPORTED BY AN INDUSTRY. A NCASI REGIONAL OFFICE AND LABORATORY IS MAINTAINED AT W.M.U. EARLY PILOT WORK BY THE NCASI AT PLAINWELL PAPER CO. PROVIDED THE DESIGN CITERIA AND PERFORMANCE DATA FOR PRIMARY CLARIFICATION OF PAPER MILL WASTE.

YOU MUST REMEMBER THAT DURING THIS TIME ALLIED COMPRISED THE MONARCH AND KING MILLS AND EACH HAD LARGE DEINKING OPERATIONS, WHICH CONTRIBUTED GREATLY TO BOTH THE BOD AND SUSPENDED SOLIDS CONTENT OF THE CLARIFIER EFFLUENT.

IN 1951, ALLIED PAPER (AS WERE ALL THE PAPER MILLS IN THE KALAMAZOO VALLEY) WAS PLACED UNDER ORDERS OF DETERMINATION BY THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES FOR SUSPENDED SOLIDS LIMITATION IN ITS EFFLUENT. TO MEET THESE LIMIATIONS, ALLIED BUILT AND PUT INTO SERVICE DORR CLARIFIERS FOR PRIMARY TREATMENT AT MONARCH IN 1951, AT KING MILL IN 1953. (ST. REGIS WHICH OWNED BRYANT MILL AT THAT TIME, INSTALLED THE BRYANT CLARIFIER IN 1952.) MONARCH IS 90 FT. IN DIAMETER, 13 FT. STRAIGHT SIDE - (CAPACITY 650,000 GALS.); BRYANT IS 100 FT. IN DIAMETER - 13 FT. STRAIGHT SIDE -(CAPACITY 850,000 GALS.). DETENTION TIME RANGES FROM 5.2 - 7.5 HRS., WELL WITHIN THE DNR DESIGN

SPECIFICATIONS. I MUST POINT OUT THAT ALLIED AND THE OTHER MILLS IN THE VALLEY OPERATED THEIR CLARIFIERS BEFORE THE THEN "DEBT FREE" CITY OF KALAMAZOO BUILT PRIMARY TREATMENT FACILITIES FOR MUNICIPAL WASTES.

IN 1961 THE DNR ESTABLISHED B.O.D. LIMITATIONS FOR ALLIED PAPER MILLS OF 48,000/DAY. SUBSEQUENT BOD EFFLUENT LIMITATIONS FOR ALLIED PAPER - KALAMAZOO OPERATION - RANGED FROM 14,490 #/DAY SET JUNE 1, 1966 TO 1205 #/DAY (THIRTY DAY AVERAGE - 2,210 #/DAY MAXIMUM) IN DECEMBER 1974. THESE ARE ALLIED'S TOTAL EFFLUENT LIMITATIONS AS SPECIFIED IN OUR NPDES PERMIT ISSUED OCTOBER 20, 1974. THIS PERMIT, WHICH EXPIRES OCTOBER OF THIS YEAR, ALSO SPECIFIED THE PRESENT BOD LIMITATIONS OF 385 #/DAY MAXIMUM FROM MAY 15 TO OCTOBER 15 AND A CORRESPONDING 500 #/DAY MAXIMUM OF SUSPENDED SOLIDS. THESE LIMITATIONS ARE BASED ON THE STREAM ASSIMILATION CAPACITY OF PORTAGE CREEK. FOR THE 10 YEAR-7 DAY LOW DROUGHT FLOW OF 29.3 CFS TO INSURE WATER QUALITY SPECIFICATIONS OF 4.0 PPM D.O.

TO EMPHASIZE THE MAGNITUDE OF THE JOB ALLIED PAPER HAS DONE IN POLLUTION ABATEMENT OVER THE YEARS, LET ME THROW SOME MORE NUMBERS AT YOU. SUSPENDED SOLIDS IN #/DAY HAVE BEEN REDUCED FROM 156,500 IN 1961 TO 103,000 IN 1963, TO 40,000 IN 1965, TO 9,300 IN 1966, TO 3,900 IN 1968 TO 102 FOR THE LAST 6 MONTHS AVERAGE FOR AN OVERALL REDUCTION OF 99.9%. BOD IN #/DAY HAS BEEN REDUCED FROM 48,700 IN 1961, TO 35,800 IN 1963, TO 27,000 IN 1965 TO 13,900 IN 1966 TO 10,250 IN 1968 TO 360 LAST 6 MONTHS AVERAGE, FOR AN OVERALL REDUCTION OF 99.3%. FLOW-EFFLUENT DISCHARGE IN MGD HAS BEEN REDUCED FROM 13.2 IN 1961 TO 13.0 IN 1963 TO 9.93 IN 1965, TO 8.62 IN 1966 TO 8.19 IN 9168 TO 2.806 (LAST 6 MONTH'S AVERAGE) FOR AN OVERALL REDUCTION OF 78.7%. THESE REDUCTIONS WERE ACCOMPLISHED BY VARIOUS MEANS OF

OF MAJOR SIGNIFICANCE WAS THE SHUTTING DOWN OF OUR THREE DEINKING OPERATIONS. A PRIMARY REASON FOR ELIMINATING THESE OPERATIONS WAS THE COST OF WASTE TREATMENT OF THE EFFLUENT FROM THESE OPERATIONS. THE DECISION TO SEND PART OF OUR EFFLUENT TO THE CITY OF KALAMAZOO WASTE TREATMENT PLANT WAS MADE WHILE ALLIED OPERATED BRYANT'S MILL A DEINKING PLANT. THE HIGH STRENGTH BOD EFFLUENT FROM MILL A WAS CLARIFIED AND DISCHARGED TO A 36" CITY SEWER LINE. THE CHARGE FOR THIS DISCHARGE IS $317/MGD. INTERNAL MILL CHANGES WERE ALSO MADE TO CONSERVE AND RECYCLE FRESH WATER AND WHITE WATER, LIKE ALL THE PAPER MACHINES WERE EQUIPPED WITH EITHER FLOTATION OR DISC SAVEALLS. ALL FRESH WATER FOR THE MILL COMES FROM PORTAGE CREEK AND IS FILTERED IN GRAVITY DOWN FLOW SAND FILTERS. THE SUSPENDED SOLIDS REMOVED FROM THE CREEK WATER BY FILTRATIONS IS 5 TIMES MORE THAN THE SUSPENDED SOLIDS ALLIED DISCHARGES TO PORTAGE CREEK - THAT IS ON AVERAGE DAYS. THE IRONY IS THAT WE MUST TREAT THE BACKWASH WATER FROM THE FILTERS TO REMOVE THE SOLIDS IN OUR CLARIFIERS. THE PROCESS FRESH WATER IS TREATED WITH CHLORINE.

PRESENT SYSTEM

AS PREDICTED BY THE DNR OUR NPDES PERMIT CONTAINED THE VERY STRINGENT JULY 1, 1977 BOD LIMITATION OF 385#/DAY MAXIMUM. LET ME SHOW YOU WHY THIS IS SO STRINGENT. FIRST WITH WASTE FLOW OF 5.0-5.5 MGD, A 385# BOD/DAY MEANS A STRENGTH OF 8.5 PPM BOD. (SOME DRINKING WATER CAN RUN AS HIGH AS 5 PPM.) SECONDLY THE ACCURACY RANGE OF BOD ANALYSIS IS ±16% AND THE TEST PROCEDURE TAKES 5 DAYS OF INCUBATION. THIS COUPLED WITH THE FACT THAT MANUFACTURING CONDITIONS CAN CAUSE VARIATIONS OF ±200 # BOD PER DAY AND YOU CAN REALIZE WE HAD A FEW PROBLEMS. WE JUST HAD TO FIND THE MAJOR SOURCES OF OUR BOD AND DISCOVER A FAST METHOD OF BOD DETERMINATION. THE R&D DEPARTMENT

WENT THROUGH A MANY FACETED RESEARCH PROJECT TO FIND THE ANSWERS BY JULY 1, 1977.

PART OF THE REASONING BY THE DNR FOR THE POOR STREAM ASSIMILATION OF PORTAGE CREEK WAS THE BRYANT MILL POND IMPOUNDMENT BELOW THE MONARCH CLARIFIER DISCHARGE. THE POND BOTTOM HAD AN ACCUMULATION OF CELLULOSIC MATERIAL AND OTHER DEINKING DEBRIS FROM OUR FORMER DEINKING OPERATION AS INDICATED BY A VERY HIGH T.O.C. STRENGTH. OUR FIRST ACTION WAS THEN TO GO THROUGH THE LEGAL AND MECHANICAL PROCESSES OF LOWERING THE DAM THAT IMPOUNDED THE POND. THIS PROCESS WAS COUPLED WITH SEEDING AND VEGETATING THE NOW EXPOSED POND BOTTOM TO PREVENT EROSION. THIS PROJECT IS COMPLETE AND NEGOTIATIONS ARE PROCEEDING WITH THE DNR TO GAIN AN INCREASE IN OUR BOD LIMITATION.

WE NOW INVESTIGATED THE MAJOR SOURCES OF BOD CONTRIBUTIONS IN THE MANUFACTURING PROCESS. WE MADE A SURVEY OF ALL THE RAW MATERIALS USED IN THE MANUFACTURE OF PAPER TO ASCERTAIN THEIR INDIVIDUAL CONTRIBUTION TO THE BOD IN OUR WASTE WATER. ALL THE PULPS WERE TESTED AND THEIR CONTRIBUTION TO THE TOTAL BOD WAS MINIMAL. STARCH AND ROSIN SIZE RATED NUMBER 1 AND 2 IN THE RAW MATERIALS CONTRIBUTING TO SOLUBLE BOD. WITH THIS IN MIND, FOR A FIVE WEEK PERIOD BOTH MONARCH AND BRYANT WERE SWITCHED FROM A MODIFIED PEARL STARCH TO A CATIONIC SIZE PRESS STARCH IN ORDER TO KEEP THE STARCH IN THE REUSED BROKE ON THE FIBER AND OUT OF THE WATER PHASE. THE RESULTS SAW NO APPRECIABLE DECREASE IN THE FIVE (5) DAY BOD NOR ANY INCREASED MILEAGE FROM THIS STARCH. THEREFORE, OUR FINAL ASSESSMENT WAS THAT THE SOLUBLE BOD CAME MOSTLY FROM THE COOKED STARCH LOST TO THE WASTE STREAM VIA PUMP LEAKS, TANK SPILLAGES OR DUMPS, IN-LINE-SCREEN BACKWASHING BREAKS AT THE SIZE PRESS WITH RESULTING STARCH LOSSES AND OTHER SMALL LOSSES. AFTER, ALL 385# OF BOD

TRANSLATES INTO ONLY 982 GALLONS OF 6% STARCH SOLUTION PER DAY SPREAD OVER SEVEN (7) PAPER MACHINES AND TWO (2) COATERS.

OUR RESEARCH PROJECTS ALSO PURSUED ANOTHER IMPORTANT AVENUE - THAT OF WHITE WATER AND WASTE WATER UTILIZATION. INCLUDING RECYCLING CLARIFIER EFFLUENT. SINCE ALLIED ALREADY HAD TWO GRAVITY DOWNFLOW SAND FILTER PLANTS, IT WAS REASONABLE TO BUILD A MODEL SAND FILTER WITH INTRICATE AIR SCRUBBING AND BACK-WASHING UNDERFLOW SYSTEM AND A CLEAR PLASTIC FRONT PANEL SO WE COULD OBSERVE ALL THE ACTION. WE PUT THIS MODEL IN THE MONARCH CLARIFIER PUMP HOUSE CLOSE TO THE SUPPLY AND OPERATED IT FOR SEVERAL WEEKS WITHOUT ANY SUCCESS. WITH AN INFLUENT OF 20-50 JTU TURBIDITY WE COULD PRODUCE AN ACCEPTABLE EFFLUENT OF 10 JTU PROCESS WATER. (THE BOD CONTENT WOULD NOT BE OBJECTIONABLE FOR PROCESS WATER.) INFLUENTS OF HIGHER TURBIDITY 50-100 JTU, RESULTED IN UNACCEPTABLE EFFLUENT TURBIDITY LEVELS 20-40 JTU. THE CHIEF PROBLEM, HOWEVER, WAS THAT WE COULD NOT EFFICIENTLY BACKWASH THE COAGULATED FILTERED MATERIAL EVEN AT A 10 TO 1 BACKWASH RATE. THE PROJECT WAS CONDUCTED WITH AN INFLUENT OF 100% CLARIFIER EFFLUENT. WE FOUND, AT THAT TIME, THERE HAD NOT BEEN ANY STUDIES CONDUCTED ON THE FILTRATION OF PAPER MILL WASTE WATER TO SERVE AS BACKGROUND MATERIAL.

THE NEXT FILTRATION PROJECT WAS CARBON ABSORPTION. A LABORATORY FEASIBILITY STUDY BY THE CALGON CORP. INDICATED A FULL SCALE PILOT STUDY WAS IN ORDER. THE PILOT MODEL CONSISTING OF FOUR (4) COLUMNS, SIX (6) INCHES IN DIAMETER AND SIX (6) FT. HIGH, WERE FILLED WITH ACTIVATED CARBON AND INSTALLED IN THE MONARCH CLARIFIER PUMP HOUSE. THE PILOT PROJECT, EXTENDING OVER SEVERAL WEEKS, WAS UNSUCCESSFUL IN TWO RESPECTS. FIRST THE ACTIVATED CARBON DIDN'T

TAKE OUT THE ANTICIPATED HIGH PERCENTAGE (85-90) OF BOD CONSISTENTLY. SECOND, THE FILTRATE BLINDED THE FILTER MEDIA AT THE TOP OF THE COLUMN PRODUCING A FUSED CAKE THAT COULD NOT BE BROKEN UP BY AIR SCRUBBING AND BACKWASHING. THIS BLINDING PHENOMENON OCCURRED EACH TIME AFTER 8-12 HOURS OF OPERATION. THE PROBLEM COULD NOT BE CURED BY PRE-FILTRATION WITH ANTHRACITE, GRAVEL, COARSE SAND OR COMBINATIONS THEREOF. WE GUESSED THAT THE BLINDING COULD BE CAUSED BY POST FLOCCULATION OF THE POLYMER NORAMALLY USED IN OUR CLARIFIER.

PREVIOUS ISOLATIONS OF THE MONARCH MILL WASTE IN THE MONARCH CLARIFIER AND THE BRYANT WASTE IN THE BRYANT CLARIFIER FOR PERIODS OF ONE OR TWO WEEKS CONFIRMED THAT THE EFFLUENT FROM THE MONARCH CLARIFIER, WHEN RECEIVING ONLY THE MONARCH MILL INFLUENT WASTE, WOULD NOT EXCEED THE 385# BOD/DAY.

WITH THIS DATA IN HAND A SYSTEM OF CONTROL BEGAN TO EVOLVE WHICH INCLUDED A MINI-COMPUTER RATHER THAN MANUAL CONTROL. ABOUT THIS TIME WE HEARD ABOUT NEW ON-LINE TOC ANALYZERS OR MONITORS. OUR LABORATORY RESEARCH EVALUATION OF CHEMICAL OXYGEN DEMAND TEST (C.O.D.) INDICATED THIS METHOD WAS NOT SUITED TO OUR WASTE STREAM. PRELIMINARY SAMPLES OF OUR CLARIFIER EFFLUENT SENT TO AN INDEPENDENT LABORATORY INDICATED A NEARLY 1 TO 1 BOD/TOC RATIO. ANALYSES WERE BEING MADE TO PROVIDE RAPID AND ACCURATE READOUTS FOR PROMPT INITIATION OF CONTROL ACTIONS.

THE COMPUTER PEOPLE AT WMU WERE CONSULTED TO DETERMINE WHAT COMPUTER HARDWARE AND SOFTWARE WOULD BE REQUIRED TO AUTOMATE CONTROL OF THE EFFLUENT DISCHARGE AND COMPLY WITH NPDES LIMITATIONS. THEY STRONGLY RECOMMENDED WE CONTRACT

WITH A COMPUTER VENDOR TO FIX SINGLE RESPONSIBILITY FOR HARDWARE AND SOFTWARE. WE NOW CENTERED OUR ATTENTION ON THE SELECTION OF A COMPUTER VENDOR, TOC ANALYZER, FLOW METERS, TURBIDITY METER AND A PH METER THAT COULD BE INTERFACED WITH A MINI-COMPUTER.

THE WMU COMPUTER PEOPLE RECOMMENDED DIGITAL EQUIPMENT COMPANY'S HARDWARE BECAUSE OF THE 4-5 SERVICEMEN IN THE IMMEDIATE AREA AND FURTHER SUGGESTED DEC'S MINI-COMPUTER MODEL PDP 11-04 WITH 32K OF CORE, 16 INPUTS AND OUTPUTS AND THE PERIPHERAL EQUIPMENT: DEC WRITER LA36, CRT VT-52 AND DAUL DISC DRIVE RK 05. ALLIED'S CORPORATE PARENT, SCM, HAD QUALIFIED COMPUTER SYSTEMS PEOPLE WHO HELPED US AT THIS POINT TO PREPARE SPECIFICATIONS FOR THIS CONTROL SYSTEM WHICH WE SUBMITTED TO 8-10 VENDORS. THE SPECIFICATIONS INCLUDED SYSTEM DESCRIPTION, HARDWARE AND SOFTWARE REQUIREMENTS, OPERATING PROCEDURES, RESPONSIBILITIES, SCHEDULE, DOCUMENTATION AND TRAINING. THE VENDOR THAT WAS RECOMMENDED AND MET ALL THE SPECIFICATIONS AT THE RIGHT COMPETITIVE PRICE WAS COPELAND AND ROLAND INC., FROM COLUMBUS, OHIO.

THE SELECTION OF THE TOC ANALYZER WAS PARTICULARLY DIFFICULT BECAUSE WE WERE UNIQUE IN THE FACT THAT A CONTINUOUS SAMPLING ANALYZER HAD NOT, TO OUR KNOWLEDGE, BEEN USED ON A PAPER MILL WASTE STREAM. WE CONSIDERED THREE TOC ANALYZERS, TWO DISCREET TYPE (IONICS AND DOHRMANN) AND ONE CONTINUOUS TYPE (RAYTHEON). OUR TWO MONTH LABORATORY EVALUATION OF A RAYTHEON MODEL WAS VERY ENLIGHTENING. SINCE WE ENVISIONED MONITORING THE TOC ON FOUR DIFFERENT STREAMS, THE CONTINUOUS SAMPLING MODEL WAS NOT PRACTICAL. WE LABORATORY TESTED THE DOHRMANN MODEL, DC80, IN THEIR MOBILE VAN AND WERE IMPRESSED BY IT'S COMPACTNESS, SAMPLE INJECTION SYSTEM: HORIBA IR DETECTOR, SAMPLE STREAM SELECTOR SEQUENCER, THE ELECTRONIC INTERFACING CAPABILITY, THE RUGGEDNESS OF THE EQUIPMENT AND SAMPLE TIME VARIABILITY.

THE FLOW SCHEMATIC SLIDE SHOWS ALLIED'S NOW COMPLETED WASTE TREATMENT CONTROL SYSTEM. ALL OF BRYANT MILL'S WASTE WATER (APPROXIMATELY 2.5 MGD) IS COLLECTED IN A LARGE 95,000 GAL. GREY TANK AND PUMPED THROUGH 3000 FT. OF 20" PIPE TO THE BRYANT CLARIFIER. THE EFFLUENT LAUNDER HAS TWO DISCHARGE WEIR BOXES 180° APART. THE EFFLUENT FLOW THAT CAN BE ACCEPTED BY THE AUTOMATIC CONTROL VALVE AT THE MONARCH CLARIFIER FLOWS TO THE INFLUENT WET WELL OF THE MONARCH CLARIFIER. THAT PORTION OF THE BRYANT CLARIFIER EFFLUENT THAT IS NOT ACCEPTED FLOWS INTO A 24" CONCRETE PIPE TO A CITY SEWER AND ON TO THE MUNICIPAL WASTE TREATMENT PLANT. THIS FLOW IS METERED BY A FOUR FT. WEIR AND BIF LEVEL RECORDER AND TOTALIZER. THIS WEIR LEVEL IS HIGHER THAN THE OPPOSITE WEIR PLATE SO THAT IF NECESSARY ALL THE BRYANT CLARIFIER EFFLUENT CAN FLOW TO THE MONARCH CLARIFIER WET WELL THROUGH A 16" POLYETHYLENE PIPE WHICH DROPS 22 FT. OVER 1100 FEET DISTANCE. A STAINLESS STEEL STILLING CHANNEL WAS NECESSARY TO DECREASE THE FLOW VELOCITY BEFORE ENTERING THE PARSHALL FLUME. THE 16" POLYETHYLENE PIPE IS REDUCED TO A 12" STAINLESS STEEL PIPE FOLLOWED BY A MANUAL KNIFE VALVE. THEN FOLLOWS THE AUTOMATIC CONTROL VALVE AND THE STILLING CHANNEL BOX BEFORE IT ENTERS THE MONARCH CLARIFIER PUMP HOUSE AND IS ADAPTED TO A 9" FIBER GLASS PARSHALL FLUME. THE PREVIOUS SLIDES SHOW THE CEMENT BLOCK ENCLOSURE FOR THE VALVES, THE POLYETHYLENE PIPE AND STAINLESS STEEL STILLING CHANNEL AND PUMP HOUSE AND PARSHALL FLUME.

THE PARSHALL FLUME IS EQUIPPED WITH A ROBERT SHAW TWO-WIRE CAPACITANCE PROBE AND ATTACHED TRANSMITTER. THE POLYETHYLENE SHEATHED COPPER SWORD-LIKE PROBE IS SPECIFICALLY SHAPED FOR PARSHALL FLUME FLOW MEASUREMENTS. ELECTRICAL SIGNALS FROM THE ROBERT SHAW TRANSMITTER AND AUTOMATIC CONTROL VALVE ENTER THE CONTROL BUILDING THROUGH UNDERGROUND CONDUIT. THE FLOW FROM THE PARSHALL FLUME DISCHARGES DIRECTLY INTO THE MONARCH CLARIFIER WET WELL.

IT MUST BE NOTED AT THIS POINT THAT TO BOTH MONARCH AND BRYANT WASTE STREAMS WE ADD ALUM FOR A FLOCCULANT AND A POLYMER FOR A COAGULANT BEFORE THE STREAMS LEAVE THE MILL BASEMENTS.

ALL THE WASTE WATER FROM THE MONARCH MILL FLOWS BY GRAVITY FROM A BASEMENT SEWER THROUGH A CULVERT UNDER CORK STREET INTO THE BOTTOM OF MONARCH CLARIFIER WET WELL WITH NO FLOW MEASURING DEVICE. A HIGH LEVEL DAM AND BY-PASS CULVERT TO PORTAGE CREEK PREVENTS THE OVERFLOWING OF THE WET WELL. SUCH OVERFLOW WOULD GROUND OUT THE PUMP MOTORS IN THE PUMP HOUSE AND COULD FLOOD THE MONARCH MILL BASEMENT CAUSING EXTENSIVE DAMAGE. A SIGNAL FROM A HIGH LEVEL PROBE AT THE DAM OVERRIDES ALL OTHER CONTROL ON THE AUTOMATIC VALVE AND PREVENTS THE BRYANT CLARIFIER EFFLUENT FLOW TO THE MONARCH CLARIFIER WET WELL FROM BY-PASSING THE DAM.

THE MONARCH CLARIFIER EFFLUENT FLOW IS MEASURED OVER A 4 FT. RECTANGULAR WEIR IN THE ENCLOSURE BY A ROBERT SHAW CAPACITANCE PROBE. THE POLYETHYLENE SHEATHED COPPER SWORD IS SHAPED SPECIFICALLY FOR A FOUR FT. RECTANGULAR WEIR AND THE SIGNAL IS SENT VIA A SHIELDED CABLE TO THE CONTROL BUILDING AND THE TRANSMITTER RECORDER AND TOTALIZER.

SAMPLES OF THE TOTAL MONARCH CLARIFIER INFLUENT AND THE BRYANT CLARIFIER EFFLUENT PORTION OF THE MONARCH INFLUENT ARE PUMPED VIA UNDERGROUND PIPES WITH GOULDS CENTRIFUGAL PUMPS LOCATED IN THE PUMP HOUSE AND THE MONARCH CLARIFIER EFFLUENT SAMPLE BY A SIMILAR PUMP IN THE CONTROL BUILDING. THE TWO FLOWS (MONARCH CLARIFIER EFFLUENT - BRYANT CLARIFIER EFFLUENT FOR MONARCH) ARE MEASURED AND THE THIRD, MONARCH MILL WASTE FLOW, IS CALCULATED BY DIFFERENCE.

THE COMPUTERIZED CONTROL SYSTEM SCHEMATIC SHOWS THAT SIGNALS FROM THE TWO PREVIOUSLY MENTIONED ROBERT SHAW FLOW METERS AND THE TOC ANALYZER ARE SENT TO THE COMPUTER WHERE CALCULATIONS ARE MADE ACCORDING TO THE PRESET ALGORITHMS AND SIGNALS ARE SENT TO THE AUTOMATIC CONTROL VALVE ALLOWING THE RIGHT AMOUNT OF THE BRYANT EFFLUENT FLOW INTO THE MONARCH CLARIFIER TO SATISFY THE BOD LIMITATION IN THE MONARCH CLARIFIER EFFLUENT TO PORTAGE CREEK. WHILE IT SOUNDS EASY IT HAS INVOLVED MANY HOURS OF CONSULTATION WITH THE COMPUTER VENDOR, BOTH IN KALAMAZOO AND COLUMBUS, OHIO. THE TOC ANALYZER ELECTRONIC EXPERT WORKED WITH THE COMPUTER PROGRAMMER AND WE BROUGHT THE TOC ANALYZER TO COLUMBUS WHERE THE ANALYZER AND COMPUTER SYSTEMS WERE INTERFACED AND OPERATED. SIGNALS FROM THE pH METER AND THE TURBIDITY METER ARE SENT TO THE COMPUTER FOR REPORT GENERATION. HOURLY, DAILY, WEEKLY AND MONTHLY REPORTS ON FLOWS, BOD, pH, TURBIDITY, SUSPENDED SOLIDS, SOLIDS SET AND GREASE AND OIL ARE GENERATED ON THE DECWRITER AND DISPLAYS ON THE CURRENT STATUS OF THE SYSTEM AT ANY ONE TIME ARE SHOWN ON THE CRT. THERE IS SUFFICIENT MEMORY TO STORE THE ABOVE MENTIONED REPORTS FOR A DETERMINED AMOUNT OF TIME.

A COMPUTER-CONTROL BUILDING, AS YOU CAN SEE ON THE LEFT OF THIS SLIDE, TO HOUSE ALL THIS EQUIPMENT WAS DESIGNED EARLY IN REGARD TO LOCATION, APPROXIMATE SIZE, AUXILIARY EQUIPMENT AND SERVICES. THE DNR APPROVAL FOR THIS WHOLE PLAN WAS RECEIVED IN MARCH 1976 AND THE CORPORATE CAPITAL EXPENDITURE REQUEST WAS APPROVED IN JUNE 1976 AND WE MADE OUR PLANS TO MEET THE JULY 1, 1977 NPDES PERMIT DATE.

THE CEMENT BLOCK CONTROL BUILDING SHOWN IN THE LOWER LEFT CORNER (25 FT. LONG x 12 FT. WIDE) IS LOCATED SLIGHTLY SOUTH AND WEST OF THE MONARCH CLARIFIER PUMP HOUSE, SO THAT THE NORTHWEST CORNER IS IN LINE WITH THE EFFLUENT

WEIR BOX OF THE CLARIFIER. THE BUILDING IS CLIMATE CONTROLLED TO MAINTAIN A YEAR AROUND TEMPERATURE OF 70-75°F AND DIVIDED INTO THREE SECTIONS. THE ENTRY AREA CONTAINS THE ELECTRIC SWITCH GEAR AND A SECOND SIMILAR AREA CONTAINS THE COMPRESSED OXYGEN AND AIR CYLINDERS AND STORAGE RACKS AND THE THIRD IS THE WORKING AND EQUIPMENT AREA. ON THE NORTH WALL OF THIS AREA ARE SAMPLERS, SHOWN HERE, AND SAMPLE BARRELS AND THE RACKS HOLDING THE TURBIDITY METER, pH METER AND ELECTRODE ASSEMBLY AND THE ROBERT SHAW FLOW RECORDERS. THE pH METER IS A LEEDS AND NORTHROP WITH A FLOW-THROUGH ELECTRODE ASSEMBLY WE HAD FABRICATED. THE TURBIDIMETER IS A HACH SURFACE SCATTER MODEL 3 THAT WAS IN SERVICE WITHOUT PROBLEMS FOR SEVERAL YEARS BEFORE IN THE PUMP HOUSE. THE SAMPLERS ARE ALLIED DESIGNED, LOCALLY FABRICATED, DISCHARGING A SAMPLE FLOW OUTFLOW OF 100 CC/MIN. THE WEST WALL IS THE WORKBENCH AREA CONTAINING AN INCUBATOR, SINK AND 2.5 CU. FT. BUILTIN REFRIGERATOR, TOGETHER WITH A WALL MOUNTED OVEN (BLUE M), AN AINSWORTH BALANCE AND A DELTA D.O. METER. THE CUPBOARDS CONTAIN THE CUSTOMARY CHEMICALS, GLASSWARE, FILTER PAPER AND A BOD DILUTION CARBOY. THE SOUTH WALL CONTAINS THE COMPUTER CABINETS (I.O. AND C.P.U.), THE CRT AND STAND AND THE HARD COPY WRITER. ALONG THE SHORT EAST WALL IS THE TOC ANALYZER PLUS THE SAMPLE STREAM SELECTOR SEQUENCER, SHOWING RECORDER AND I.R. DETECTOR.

ANOTHER REQUIREMENT OF OUR NPDES PERMIT WAS TO PROVIDE AN ALTERNATE POWER SOURCE. WE HAVE INSTALLED AUTOMATIC SWITCHING GEAR THAT WILL SWITCH FROM THE INDUSTRIAL CIRCUIT OF CONSUMERS TO THE COMMERCIAL CIRCUITS SHOULD THE FIRST SOURCE FAIL. THIS PROJECT WAS ALL UNDER AL VICKERY'S RESPONSIBILITY. YOU CAN SEE THIS SWITCHING GEAR ON THE NORTHEAST CORNER OF MILL E, NEAR THE DAM AT ALCOTT ST. AND THE NORTH SIDE OF MONARCH. THIS WHOLE WASTE TREATMENT SYSTEM COST WAS ABOUT $230,000.

THE NEW SYSTEM WAS IN OPERATION BY JULY 1, 1977. SEEING IT WAS UNIQUE AND ONE OF A KIND, THE STARTUP WAS NOT WITHOUT DIFFICULTIES. COPELAND AND ROLAND HAD NOT WORKED ON A PROCESS LIKE THIS BEFORE AND DORHMANN HAD NOT INTERFACED THEIR TOC ANALYZER WITH A COMPUTER EITHER, SO SOMETIMES THE LEARNING PROCESS WAS PAINFUL AND UNCHARTED. THE BOTTOM LINE IS THAT THE SYSTEM WORKS AND ALLIED HAS, EXCEPT FOR A FEW DAYS IN JULY, AUGUST AND SEPTEMBER 1977, BEEN IN COMPLIANCE WITH OUR NPDES PERMIT LIMITATIONS. WE WISH TO THANK DAVE RANDALL FOR HIS HELP WITH COMPUTER AND ELECTRICAL PROBLEMS.

ANOTHER FACET OF WASTE TREATMENT IS SLUDGE DISPOSAL AND SOLID WASTE DISPOSAL. THE SLUDGE OR UNDERFLOW FROM THE CLARIFIERS IS PUMPED AT 7-8% SOLIDS TO DRYING LAGOONS ON OUR PROPERTY. WHEN SUFFICIENTLY DRY, THE SLUDGE IS DUG OUT AND TRUCKED TO OTHER AREAS AND COVERED WITH SOIL FROM NEWLY PREPARED LAGOONS. ALL SOLID WASTE FROM THE MILLS IS DEPOSITED ON OUR PROPERTY AND COVERED UNDER OUR PERMIT FROM THE COUNTY HEALTH DEPARTMENT. AFTER MANY EXPERIMENTS, OUR BEST ODOR CONTROL TREATMENT IS TO SPRAY A LIME SLURRY ON OUR ACTIVE DRY LAGOONS 5 - 6 DAYS A WEEK OVER A SIX MONTH PERIOD. THIS LIME RAISES THE pH AND COMBATS THE ODORS ARISING FROM ANY ANEROBIC CONDITIONS IN THE LAGOONS.

ALL THIS OPERATION IS UNDER THE SUPERVISION OF GEORGE BROOKS USING 3-4 MEN AND A CRANE, BULLDOZER, DUMP TRUCKS AND TANK TRUCK.

COSTS

COSTS FOR POLLUTION CONTROL FOR THE PAST 12 MONTHS:

OPERATING AND MAINTENANCE			
CHEMICALS			
LIME	$16,073		
ALUM	31,025		
POLYMER	20,075		$ 67,173.00
MAINTENANCE		$ 58,000.00	
ELECTRICAL		121,874.53	
DEPRECIATION		30,000.00	
COMPUTER MAINTENANCE		3,420.00	
SALARIES AND WAGES		93,500.00	306,794.53
CITY OF KALAMAZOO - SEWER COSTS			227,487.12
OTHER RELATED COSTS			
NCASI FEE		$ 1,405	
U.S.G.S. GAUGING STATION		2,000	
DNR SURVEILLANCE FEE		7,162	10,567.00
		TOTAL	$612,021.63

OPERATING

WHEN ALL IS GOING WELL, WE DAILY FOLLOW CERTAIN SET PROCEDURES - COMPOSITE SAMPLES OF THE BRYANT CLARIFIER INFLUENT AND EFFLUENT AND MONARCH CLARIFIER INFLUENT AND EFFLUENT ARE TESTED FOR pH, BOD, SUSPENDED SOLIDS, SOLIDS SET, GREASE AND OIL AND T.O.C. FLOW CHARTS ARE CHANGED, T.O.C. ANALYZER IS CALIBRATED, pH METER AND TURBIDATION METER ARE CLEANED, SAMPLE LINES ARE FLUSHED, ETC. THERE ARE ALWAYS ROUTINE MAINTENANCE CHORES TO BE DONE AND

CHECKS OF ALL THE EQUIPMENT. ALL FRESH WATER METERS IN MILL C, D AND MONARCH ARE READ AND RECORDED. ALL TEST RESULTS ARE RECORDED. A REGULAR WEEKLY REPORT, THE "WASTE TANK TREATMENT TEST" AND FRESH WATER USAGE IS SENT TO A NUMBER OF YOU. THEN WE ARE REQUIRED TO FILE BY THE 10TH OF EACH MONTH TO THE DNR A MONTHLY OPERATING REPORT (MOR) INCLUDING THE FLOW, BOD, SUSPENDED SOLIDS, SOLIDS SET, pH AND GREASE AND OIL FOR OUR NPDES OUTFALL FOR EACH DAY. THE OPERATION OF OUR WASTE TREATMENT FACILITIES IS NON-PRODUCTIVE AND AT TIMES COULD BE CONSIDERED "OPERATIONS RAT HOLE", BUT IT IS VITAL TO THE CONTINUED OPERATION OF THE KALAMAZOO OPERATIONS. WE CANNOT OPERATE WITHOUT MEETING OUR NPDES PERMIT LIMITATIONS EVERY DAY OF THE YEAR. VIOLATIONS ARE SUBJECT TO EITHER CIVIL OR CRIMINAL ACTION. TOM AND KEN AND ALL OUR SUPERINTENDENTS ARE WELL AWARE OF THE IMPORTANCE ATTACHED TO MAINTAINING A WATCHFUL EYE ON WASTES AND CONSERVATION OF FRESH AND WHITE WATERS. THEY TAKE PROMPT ACTION TO MINIMIZE SPILLS AND LEAKS AND ADVISE US OF ANYTHING UNUSUAL. SOMETIMES WE HAVE SHUT DOWN ALL OR PART OF THE PAPER MACHINES WHEN PART OF THE WASTE TREATMENT FACILITIES ARE MALFUNCTIONING OR DOWN FOR REPAIRS.

POLLUTION CONTROL ALSO INVOLVES FILLING OUT OTHER FORMS EITHER FOR MICHIGAN DNR OR U.S.E.P.A. YEARLY WE FILE A SURVEILLANCE FORM FOR DND WHERE WE MUST LIST, AMONG OTHER THINGS, ALL RAW MATERIALS THAT COULD CONTAIN ANY OF THE 121 CRITICAL MATERIALS. THE E.P.A. HAS A LIST OF PRIORITY POLLUTANTS AND ALSO SOON WILL HAVE A LIST OF HAZARDOUS AND TOXIC MATERIALS. FOR TWO OF THESE CRITICAL MATERIALS THAT HAVE BEEN IN THE NEWS LATELY, MERCURY AND PCB (POLYCHLORINATED BIPHENYL), WE HAD TO FILL OUT SPECIAL FORMS. WE HAVE HAD BOTH OUR WASTE EFFLUENT AND PAPER PRODUCTS TESTED FOR PCB BY AN INDEPENDENT LABORATORY AND THE LEVELS OF THIS CONTAMINANT ARE AT THE 7-10 PPB LEVEL - DETECTION LEVEL. THIS IS NOT SURPRISING BECAUSE WE HAD PREVIOUSLY SENT

INQUIRIES, THROUGH OUR PURCHASING DEPARTMENT, TO ALL OUR SUPPLIERS REQUIRING INFORMATION ON ALL THE RAW MATERIALS OR CHEMICALS SOLD TO ALLIED AS TO CRITICAL MATERIALS CONTENT. NO RAW MATERIAL OR CHEMICAL IS PURCHASED UNLESS IT IS U.S.FDA APPROVED. INDUSTRY HAS AN EXCELLENT TRACK RECORD IN THE POLLUTION CONTROL OR ABATEMENT FIELD IN THE LAST FEW YEARS. 20% OF ALL THE WATER POLLUTION COMES FROM INDUSTRY - 80% COMES FROM MUNICIPAL WASTE. ANOTHER INTERESTING STATISTIC IS THAT 80% OF INDUSTRY IS IN COMPLIANCE WITH NPDES PERMITS, 50% OF MUNICIPALITIES AND 20% OF GOVERNMENT INSTALLATIONS. GOVERNMENT FUNDING IS 0% FOR INDUSTRY, 75% FOR MUNICIPALITIES AND 100% FOR GOVERNMENT INSTALLATIONS. SO HOW ABOUT THAT FOR CREDIBILITY FOR THE INDUSTRY SEGMENT OF OUR SOCIETY.

THE OTHER SIDE OF THE COIN OF WASTE TREATMENT OR POLLUTION ABATEMENT IS CONSERVATION. I HAVE ALREADY NOTED THAT ALLIED HAS REDUCED ITS WASTE FLOW 78.7% BUT THIS ISN'T GOOD ENOUGH. OUR GOAL IS TO GET OUR WATER USAGE DOWN BELOW THE 10,000 GALLONS PER TON OF PAPER PRODUCED LEVEL - MEANING 2.8 MGD. TO ACHIEVE THIS GOAL WE HAVE MET EACH TUESDAY FOR THE LAST TWO YEARS WITH MANUFACTURING, MAINTENANCE, ENGINEERING AND R&D PERSONNEL TO PLAN AND INITIATE PROJECTS WHICH WILL REDUCE OUR FRESH WATER USAGE BY RECYCLING BOTH FRESH WATER AND WHITE WATER.

AS PER U.S.E.P.A. AND MICHIGAN DNR REQUIREMENTS, ALLIED HAS UNDER AL VICKERY'S DIRECTION AND PLAN, PREPARED POLLUTION INCIDENCE PREVENTION PLANS (PIPP). THESE ARE FILED WITH BOTH EPA AND DNR AND HAVE TO BE AT HAND FOR INSPECTION BY EPA PEOPLE WHEN THEY PAY US THOSE SURPRISE VISITS.

THE DNR INSPECTS US UNANNOUNCED ONCE A YEAR AND TAKES SAMPLES AND FLOWS TO SEE IF WE ARE IN COMPLIANCE. THIS YEAR THEY CAME MARCH 27 AND 28 AND WE WERE IN COMPLIANCE. IN ADDITION, THIS YEAR THEY DID A BIOASSAY ON OUR EFFLUENT AND NOTED THAT "EFFLUENT FROM OUTFALL 390.006 WAS NOT TOXIC TO D. MAGNA ON AN ACUTE (SHORT TERM) BASIS. A 48 HOUR LC50 (EFFLUENT CONCENTRATION LETHAL TO 50% OF THE TEST ORGANISMS) COULD NOT BE CALCULATED DUE TO LACK OF DAPHNID MORTALITY." OUR EFFLUENT WAS ALSO TESTED FOR HEAVY METALS, CHROMIUM AND ZINC WITH RESULTS OF <10 PPB AND 10 PPB, NEGLIGIBLE BELOW DETECTIBLE LEVEL.

WEEKLY FROM LATE APRIL UNTIL LATE OCTOBER OR EARLY NOVEMBER, JOHN ROTH TAKES A RIVER SURVEY WHICH MEANS HE TAKES SAMPLES FROM TWO (2) POINTS ABOVE OUR DISCHARGE TO PORTAGE CREEK (KILGORE ROAD AND CORK STREET), AND FOUR (4) POINTS BELOW (ALCOTT, REED ST., VINE AND PITCHER) AS WELL AS A MOSEL AVENUE SAMPLE FROM KALAMAZOO RIVER. THESE SAMPLES ARE TESTED FOR D.O., TEMPERATURE AND TURBIDITY. THE D.O. IS NEVER BELOW 4 PPM AND MOST ALWAYS AT 5.0 PPM D.O. AND ABOVE, BELOW OUR DISCHARGE. OFTEN OUR EFFLUENT DISCHARGE IS IN THE 4 TO 5 D.O. RANGE.

WE SHOULD MENTION AT THIS POINT THAT DURING THE LAST YEAR WE COMPLETED A $42,000 PROJECT THAT WAS FOSTERED ON US BY THE DNR - THAT IS OF PICKING UP THE BRYANT SAND FILTER BACK FLUSH WATER - ABOUT 400,000 GALS/DAY CONTAINING ABOUT 5# BOD, 450# SUSPENDED SOLIDS (TAKEN OUT OF THE CREEK WATER). THE SYSTEM WAS COMPUTERIZED BY DAVE RANDALL SO THAT IT OPERATES AUTOMATICALLY.

FUTURE DEVELOPMENTS

RESEARCH AND DEVELOPMENT IN WASTE TREATMENT AND POLLUTION CONTROL IS AN ON-GOING PROCESS. WE DON'T KNOW WHAT THE PROVISIONS WILL BE IN THE NEW NPDES PERMIT WE HAVE JUST MADE APPLICATION FOR AND WHICH COMES DUE IN OCTOBER. FOR

1) TO REDUCE WATER USAGE AND THUS WASTE WATER DISCHARGE TO 10,000 GALS/TON OF PAPER, 2) TO REDUCE OUR CITY SEWER COSTS, 3) TO RECYCLE MORE WHITE WATER AND USE MORE WHITE WATER IN PLACE OF FRESH WATER, 4) TO PILOT PLANT A PRESSURE TYPE HIGH RATE FILTRATION UNIT FOR CLARIFIER EFFLUENT FLOW. WE ENVISION A NEW UNIT THAT COULD REPLACE THE INEFFICIENT MONARCH AND BRYANT FILTER PLANTS AND USE BOTH PORTAGE CREEK WATER AND CLARIFIER EFFLUENT FOR THE INFLUENT TO THIS PLANT.

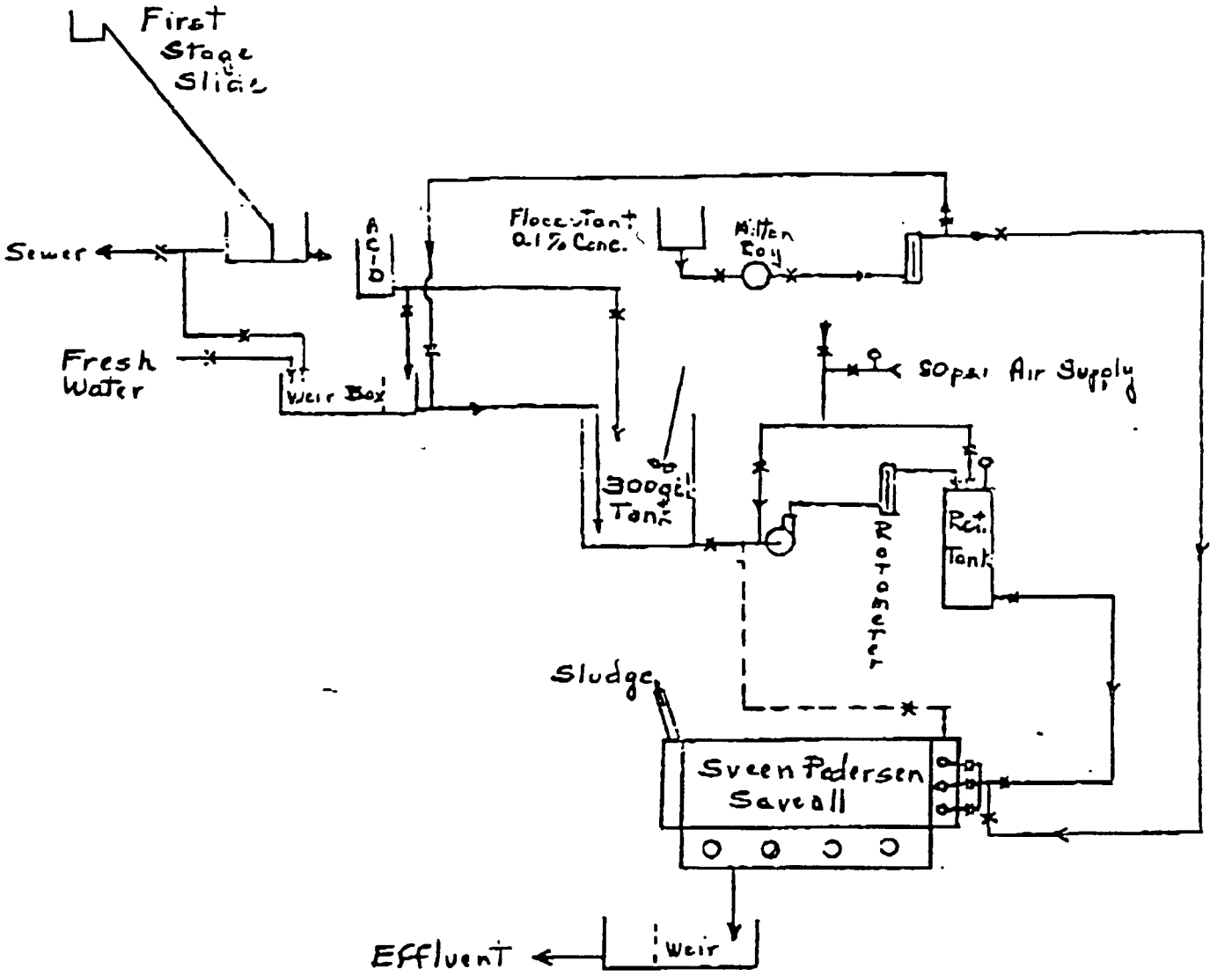
THE CITY OF KALAMAZOO'S NEW AWT PLANT WILL COST SOME 80 MILLION DOLLARS AND THUS THE COST PER MGD FOR US WILL INCREASE AND ALSO THE CITY, AS PER P.L. 92-500, WILL HAVE TO ASSESS AN INDUSTRIAL COST RECOVERY FEE FOR 30 YEARS WHICH COULD COST ALLIED $750,000 OVER A 30 YEAR PERIOD UNLESS THIS PART OF THE LAW IS REPEALED.

THEN WE ARE NOT SURE OF THE IMPACT OF PRETREATMENT STANDARDS, TOXIC SUBSTANCE ACT PROVISIONS, NEW WATER QUALITY STANDARDS, THE GROUND WATER PROTECTION BILL OR A HOST OF OTHER REGULATIONS THAT OUR LEGISLATORS SEE FIT TO PROMULGATE TO PROTECT THE ENVIRONMENT. IT WILL GET TOUGHER AND MORE COMPLICATED. WE AT ALLIED THAT ARE INVOLVED IN POLLUTION CONTROL ARE VERY PROUD OF OUR RECORD AND ACCOMPLISHMENTS AND SO SHOULD ALL OF YOU. BUT THE JOB OF DOING THE BEST WE CAN, MUST INVOLVE ALL OF. DO YOUR SHARE - YOU KNOW WE WILL. THANK YOU.

SLIDES FOR SPEECH AT SUPERVISORY MEETING - JULY 17, 1979

1. MONARCH MILL
2. MONARCH CLARIFIER
3. BRYANT CLARIFIER
4. MONARCH MILL POND
5. BRYANT POND BOTTOM
6. ALCOTT STREET DAM
7. FLOW SCHEMATIC
8. MILL D SUMP
9. GREY TANK
10. MONARCH & BRYANT CLARIFIERS AND 16" PIPE
11. STILLING WELL
12. PARSHALL FLUME (HEAD END)
13. PARSHALL FLUME (DISCHARGE)
14. MONARCH CLARIFIER WEIR SAMPLE PIPE AND CONTROL BUILDING
15. COMPUTERIZED CONTROL SYSTEM SCHEMATIC
16. MONARCH CLARIFIER PUMP HOUSE, VALVE HOUSE, CONTROL BUILDING
17. SAMPLES
18. TURBIDITY METER, pH AND FLOW METER
19. WORK BENCH AREA
20. I.O. AND C.P.U.
21. CRT AND DECWRITER
22. CRT AND DECWRITER
23. TOC ANALYZER
24. TOC CHART
25. FURNACE
26. INJECTOR
27. TANK TRUCK
28. PORTAGE CREEK - REED STREET + GAUGING STATION

Flow Diagram



U.G.S 3/13/59

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Please print or type in the unshaded areas only

EPA I.D. NUMBER (copy from Item 1 of Form 1)

Form Approved OMB No. 158-R0173

FORM 2C NPDES

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER
EXISTING MANUFACTURING, COMMERCIAL, MINING AND SILVICULTURAL OPERATIONS
Consolidated Permits Program

I. OUTFALL LOCATION

For each outfall, list the latitude and longitude of its location to the nearest 15 seconds and the name of the receiving water.

A. OUTFALL NUMBER (list)	B. LATITUDE 1. DEG	2. MIN	3. SEC	C. LONGITUDE 1. DEG	2. MIN	3. SEC	D. RECEIVING WATER (name)
002	42	15	36	85	34	36	Portage Creek

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and outfalls. If a water balance cannot be determined (*e.g., for certain mining activities*), provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures.

B. For each outfall, provide a description of: (1) All operations contributing wastewater to the effluent, including process wastewater, sanitary wastewater, cooling water, and storm water runoff; (2) The average flow contributed by each operation; and (3) The treatment received by the wastewater. Continue on additional sheets if necessary.

1. OUTFALL NO. (list)	2. OPERATION(S) CONTRIBUTING FLOW a. OPERATION (list)	b. AVERAGE FLOW (include units)	3. TREATMENT a. DESCRIPTION	b. LIST CODES FROM TABLE 2C-1	
001	Manufacture of paper	1.559 MGD	Coagulation	2D	
			Sedimentation	1U	
			Discharge to P.O.T.W.	XX	
			Sludge Lagoons	5T	
002	Manufacture of paper	0.785 MGD	Coagulation	2D	
			Sedimentation	1U	
			Sludge Lagoons	5T	
			Discharge to Surface Water	4A	

000097

OFFICIAL USE ONLY (effluent guidelines sub-categories)

SA 038058

EPA I.D. NUMBER (copy from Item 1 of Form 1)

CONTINUED FROM PAGE 2

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V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C See instructions before proceeding – Complete one set of tables for each outfall – Annotate the outfall number in the space provided. NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

A. Is any pollutant listed in Item V-C a substance or a component of a substance which you do or expect that you will over the next 5 years use or manufacture as an intermediate or final product or byproduct?

☐ YES (list all such pollutants below) ☒ NO (go to Item VI-B)

B. Are your operations such that your raw materials, processes, or products can reasonably be expected to vary so that your discharges of pollutants may during the next 5 years exceed two times the maximum values reported in Item V?

☐ YES (complete Item VI-C below) ☒ NO (go to Section VII)

C. If you answered "Yes" to Item VI-B, explain below and describe in detail the sources and expected levels of such pollutants which you anticipate will be discharged from each outfall over the next 5 years, to the best of your ability at this time. Continue on additional sheets if you need more space.

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CONTINUED FROM THE FRONT

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

☐ YES (complete the following table) ☒ NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(S) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW				
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		b. TOTAL VOLUME (specify with units)		c. DURATION (in days)
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

☐ YES (complete Item III B) ☒ NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?

☐ YES (complete Item III C) ☐ NO (go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents an actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. MAXIMUM QUANTITY			2. AFFECTED OUTFALLS (list outfall numbers)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

☐ YES (complete the following table) ☒ NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. no.	b. source of discharge		a. required	b. projected

B. OPTIONAL. You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. ☐ MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

 CONTINUE ON PAGE 3

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CONTINUED FROM THE FRONT

VII BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

☐ YES [illegible] ☒ NO go to Section [illegible]

VIII CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

☒ YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below) ☐ NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED
Environmental Research Group Inc.	117 N. First Ann Arbor, MI 48104	313-662-3104	All Bod C.O.D.

IX. CERTIFICATION

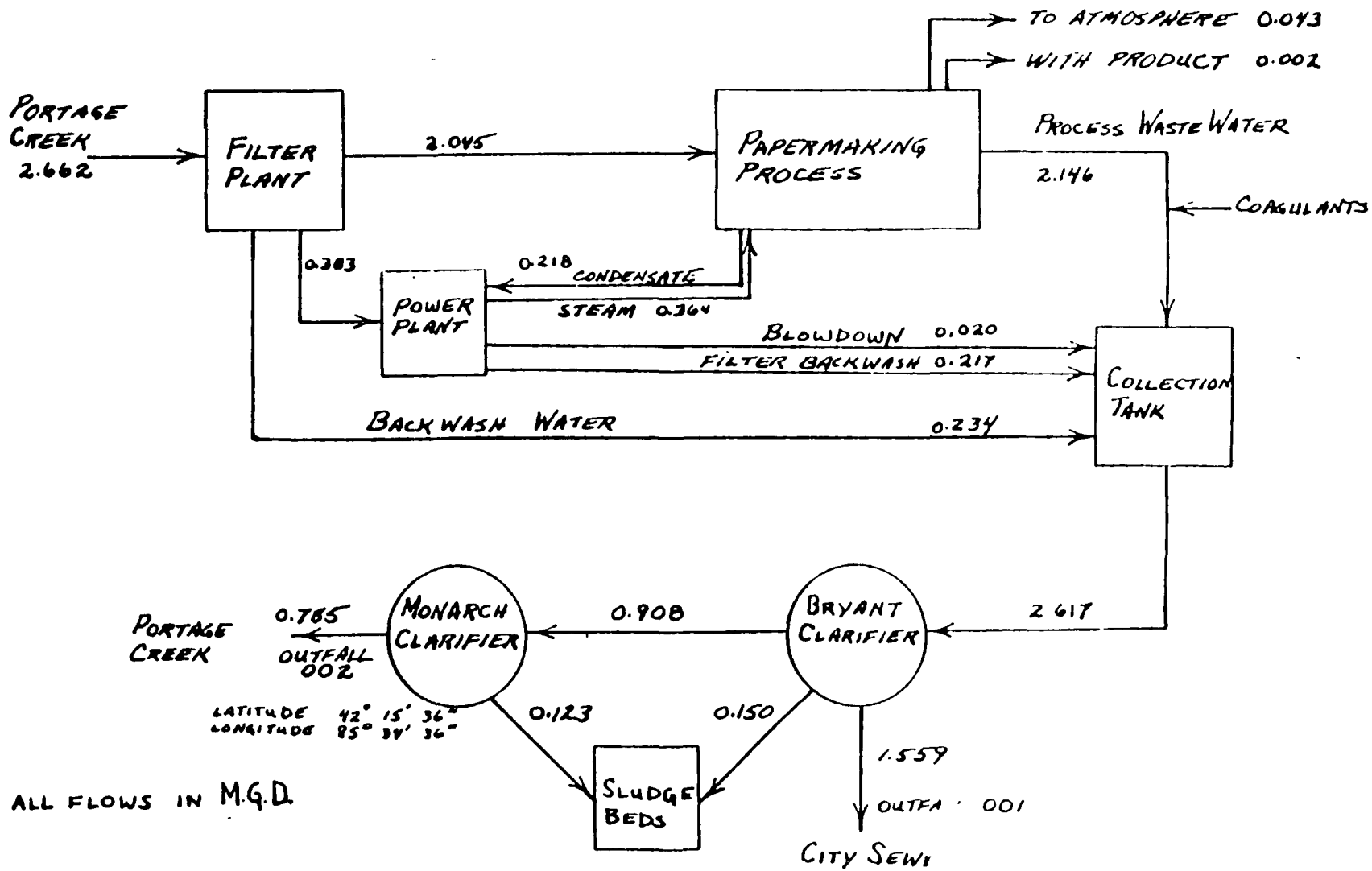
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (Type or print)	B. PHONE NO. (area code & no.)
T. E. Flanagan Vice President Operations	616-345-7131
C. SIGNATURE	**D. DATE SIGNED**
T. E. Flanagan	12-15-81

SA 038061

ALLIED PAPER INC. KALAMAZOO, MICHIGAN

SCHEMATIC WATER FLOW



ALL FLOWS IN M.G.D.

AWW
12-81

SA 038062

NOTE: ND IS NOT DETECTABLE

ITEM V B CONTINUED FROM FRONT

1 POLLUTANT AND CAS NO (if available)	2 MARK X a. REQUIRED PRESENT	2 MARK X b. REQUIRED ABSENT	3 EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO OF ANALYSES	4 UNITS a. CONCENTRATION	b. MASS	5 INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO OF ANALYSES
g. Nitrogen Total Organic (as N)	X		1.2	9.5						mg/l	lbs.			
h. Oil and Grease	X		2.0	15.8						mg/l	lbs.			
i. Phosphorus (as P) Total (7723 14 0)	X		0.27	2.1						mg/l	lbs.			
j. Radioactivity														
(1) Alpha Total														
(2) Beta Total														
(3) Radium Total														
(4) Radium 226 Total														
k. Sulfate (as SO_4) (14808 79 8)	X		190	1505						mg/l	lbs.			
l. Sulfide (as S)	X		0.038	0.3						mg/l	lbs.			
m. Sulfite (as SO_3) (14265 45 3)	X		< 1.0	-						mg/l	-			
n. Surfactants	X		0.039	0.3						mg/l	lbs.			
o. Aluminum Total (7429 90 5)	X		1.2	9.5						mg/l	lbs.			
p. Barium Total (7440 39 3)	X		0.1	0.8						mg/l	lbs.			
q. Boron Total (7440 42 8)		X	N.D.											
r. Cobalt, Total (7440 48 4)	X		< 0.005	-						mg/l	-			
s. Iron Total (7439 89 6)	X		0.29	2.3						mg/l	lbs.			
t. Magnesium Total (7439 95 4)	X		20	158						mg/l	lbs.			
u. Molybdenum Total (7439 98 7)	X		< 0.1	-						mg/l	-			
v. Manganese Total (7439 96 5)	X		0.079	0.63						mg/l	lbs.			
w. Tin Total (7440 31 5)	X		< 0.08	-						mg/l	-			
x. Titanium, Total (7440 32 6)	X		< 0.08	-						mg/l	-			

CONTINUE ON PAGE V 3

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EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
	002

CONTINUED FROM PAGE 3 OF FORM 2C

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PART C. If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part, please review each carefully. Complete one table (*all seven pages*) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. Testing Required by EPA	b. Testing Required by Applicant	c. Base/Neutral Pollutant	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) Concentration	(2) Mass	b. MAXIMUM 30 DAY VALUE (if available) (1) Concentration	(2) Mass	c. LONG TERM AVRG. VALUE (if available) (1) Concentration	(2) Mass	d. NO. OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) Concentration	(2) Mass	b. NO. OF ANALYSES
METALS, CYANIDE, AND TOTAL PHENOLS															
1M Antimony Total (7440-36-0)	X	X		< 0.05	-						mg/l	-			
2M Arsenic Total (7440-38-2)	X	X		< 0.001	-						mg/l	-			
3M Beryllium Total (7440-41-7)	X	X		< 0.002	-						mg/l	-			
4M Cadmium Total (7440-43-9)	X	X		< 0.003	-						mg/l	-			
5M Chromium Total (7440-47-3)	X	X		0.005	0.04						mg/l	lbs.			
6M Copper Total (7550-50-8)	X	X		0.01	0.08						mg/l	lbs.			-
7M Lead Total (7439-97-6)	X	X		< 0.01	-						mg/l	lbs.			
8M Mercury Total (7439-97-6)	X	X		< 0.0002	-						mg/l	-			
9M Nickel Total (7440-02-0)	X	X		< 0.01	-						mg/l	-			
10M Selenium Total (7782-49-2)	X	X		< 0.001	-						mg/l	-			
11M Silver, Total (7440-22-4)	X	X		< 0.003	-						mg/l	-			
12M Thallium Total (7440-28-0)	X	X		< 0.02	-						mg/l	-			
13M Zinc, Total (7440-66-6)	X	X		0.025	0.2						mg/l	lbs.			
14M Cyanide Total (57-12-5)	X	X		< 0.01	-						mg/l	-			
15M Phenols Total	X	X		< 0.004	-						mg/l	-			
DIOXIN															
2,3,7,8-Tetra chlorodibenzo-P-Dioxin (1764-01-6)	X		X	DESCRIBE RESULTS N.D.											

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

1 POLLUTANT AND CAS NUMBER (if available)	2 MARK X			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a	b	c	a MAXIMUM DAILY VALUE		b MAXIMUM 30 DAY VALUE (if available)		c LONG TERM AVRG VALUE (if available)		d NO OF ANALYSES	a CONCENTRATION	b MASS	a LONG TERM AVERAGE VALUE		b NO OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION – VOLATILE COMPOUNDS															
1V Acrolein (107 02 8)															
2V Acrylonitrile (107 13 1)															
3V Benzene (71 43 2)															
4V Bis (Chloro methyl) Ether (542 88 1)															
5V Bromoform (75 25 2)															
6V Carbon Tetrachloride (56 23 5)															
7V Chlorobenzene (108 90 7)															
8V Chlorodibromomethane (124 48 1)															
9V Chloroethane (75 00 3)															
10V 2 Chloro ethylvinyl Ether (110 75 8)															
11V Chloroform (67 66 3)															
12V Dichloro bromomethane (75 27 4)															
13V Dichloro difluoromethane (75 71 8)															
14V 1 1 Dichloro ethane (75 34 3)															
15V 1 2 Dichloro ethane (107-06 2)															
16V 1 1 Dichloro ethylene (76 35 4)															
17V 1 2 Dichloro propane (78 87 5)															
18V 1 2 Dichloro propylene (542 75 6)															
19V Ethylbenzene (100 41 4)															
20V Methyl Bromide (74 83 9)															
21V Methyl Chloride (74 87 3)															

CONTINUE ON PAGE V 5

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CONTINUED FROM PAGE V-4

EPA I.D. NUMBER (copy from Item 1 of Form 1) | OUTFALL NUMBER 002

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK "X" a. Present in effluent b. Present in intake c. Present in waste	3. EFFLUENT a. MAXIMUM DAILY VALUE (1) Concentration	(2) Mass	b. MAXIMUM 30 DAY VALUE (if available) (1) Concentration	(2) Mass	c. LONG TERM AVRG VALUE (if available) (1) Concentration	(2) Mass	d. NO OF ANALYSES	4. UNITS a. CONCENTRATION	b. MASS	5. INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) Concentration	(2) Mass	b. NO OF ANALYSES
GC/MS FRACTION – VOLATILE COMPOUNDS (continued)													
22V Methylene Chloride (75 09 2)													
23V 1,1,2,2 Tetrachloroethane (79 34 5)													
24V Tetrachloroethylene (127 18 4)													
25V Toluene (108 88 3)													
26V 1,2 Trans Dichloroethylene (156 60 5)													
27V 1,1,1 Trichloroethane (71 55 6)													
28V 1,1,2 Trichloroethane (79 00 5)													
29V Trichloroethylene (79 01 6)													
30V Trichlorofluoromethane (75 69 4)													
31V Vinyl Chloride (75 01 4)													
GC/MS FRACTION – ACID COMPOUNDS													
1A 2 Chlorophenol (95 57 8)	X	X		ND									
2A 2,4 Dichlorophenol (120 83 2)	X	X		ND									
3A 2,4 Dimethylphenol (105 67 9)	X	X		ND									
4A 4,6 Dinitro O Cresol (534 52 1)	X	X		ND									
5A 2,4 Dinitrophenol (51 28 5)	X	X		ND									
6A 2 Nitrophenol (88 75 5)	X	X		ND									
7A 4 Nitrophenol (100 02 7)	X	X		ND									
8A P Chloro M Cresol (59 50 7)	X	X		ND									
9A Pentachlorophenol (87 86 5)	X	X		ND									
10A Phenol (108 95 2)	X	X		ND									
11A 2,4,6 Trichlorophenol (88 06 2)	X	X		ND									

CONTINUE ON REVERSE

038097

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CONTINUED FROM THE FRONT

1 POLLUTANT AND CAS NUMBER (if available)	2 MARK X			3 EFFLUENT							4 UNITS		5 INTAKE (optional)		
	a TEST INCLUDED	b BELIEVED PRESENT	c BELIEVED ABSENT	a MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	(2) MASS	d NO OF ANALYSES	a CONCENTRATION	b MASS	a LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b NO OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS															
1B Acenaphthene (83 32 9)															
2B Acenaphtylene (208 96 8)															
3B Anthracene (120 12 7)															
4B Benzidine (92 87 5)															
5B Benzo (a) Anthracene (56 55 3)															
6B Benzo (a) Pyrene (50 32 8)															
7B 3 4 Benzo fluoranthene (205 99 2)															
8B Benzo (ghi) Perylene (191 24 2)															
9B Benzo (k) Fluoranthene (207 08 9)															
10B Bis (2 Chloro ethoxy) Methane (111 91 1)															
11B Bis (2 Chloro ethyl) Ether (111 44 4)															
12B Bis (2 Chloro isopropyl) Ether (39638 32 9)															
13B Bis (2 Ethyl hexyl) Phthalate (117 81 7)															
14B 4 Bromo phenyl Phenyl Ether (101 55 3)															
15B Butyl Benzyl Phthalate (85 68 7)															
16B 2 Chloro nephthalene (91 58 7)															
17B 4 Chloro phenyl Phenyl Ether (7005 72-3)															
18B Chrysene (218 01 9)															
19B Dibenzo (a h) Anthracene (53 70 3)															
20B 1 2 Dichloro benzene (95 50 1)															
21B 1 3 Dichloro benzene (541 73 1)															

CONTINUE ON PAGE V-7

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FPA I D NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
	002

Form Approved OMB No 158-R0173

POLLUTANT AND CAS NUMBER (if available)	2 MARK X a Test in Bioassay	b Bioassay Present	c Bioassay Present	3 EFFLUENT a MAXIMUM DAILY VALUE (1) Concentration	(2) Mass	b MAXIMUM 30 DAY VALUE (if available) (1) Concentration	(2) Mass	c LONG TERM AVRG VALUE (if available) (1) Concentration	(2) Mass	d NO OF ANALYSES	4 UNITS a CONCENTRATION	b MASS	5 INTAKE (optional) a LONG TERM AVERAGE VALUE (1) Concentration	(2) Mass	b NO OF ANALYSES
C/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
2B 1 4 Dichloro enzene (106 46 7)															
3B 3 3 Dichloro enzidine 91 94 1)															
4B Diethyl hthalate 94 66 2)															
5B Dimethyl hthalate 131 11 3)															
6B Di N Butyl hthalate 94 74 2)															
7B 2 4 Dinitro oluene (121 14 2)															
8B 2 6 Dinitro oluene (606 20 2)															
9B Di N Octyl hthalate 117 84 0)															
0B 1 2 Diphenyl ydrazine (as Azo nzene) (122 66 7)															
1B Fluoranthene 206 44 0)															
2B Fluorene 86 73 7)															
3B Hexa hlorobenzene 118 71 1)															
4B Hexa hlorobutadiene 87 68 3)															
5B Hexachloro yclopentadiene 77 47 4)															
6B Hexachloro thane (67 72 1)															
7B Indeno (1 2,3 cd) Pyrene 193 39 5)															
8B Isophorone 78 59 1)															
9B Naphthalene 91 20 3)															
0B Nitrobenzene 98 95 3)															
1B N Nitro odimethylamine 62 75 9)															
2B N Nitrosodi N Propylamine 621 64 7)															

CONTINUE ON REVERSE

SA 038069

CONTINUED FROM THE FRONT

1 POLLUTANT AND CAS NUMBER (if available)	2 MARK X a. [illegible]	b. [illegible]	c. [illegible]	3 EFFLUENT a. MAXIMUM DAILY VALUE (1) CONCENTRATION	(2) MASS	b. MAXIMUM 30 DAY VALUE (if available) (1) CONCENTRATION	(2) MASS	c. LONG TERM AVRG VALUE (if available) (1) CONCENTRATION	(2) MASS	d. NO OF ANALYSES	4 UNITS a. CONCENTRATION	b. MASS	5 INTAKE (optional) a. LONG TERM AVERAGE VALUE (1) CONCENTRATION	(2) MASS	b. NO OF ANALYSES
GC/MS FRACTION – BASE/NEUTRAL COMPOUNDS (continued)															
43B N Nitro sodiphenylamine (86 30 6)															
44B Phenanthrene (85 01 8)															
45B Pyrene (129 00 0)															
46B 1 2 4 Tri chlorobenzene (120 82 1)															
GC/MS FRACTION – PESTICIDES															
1P Aldrin (309 00 2)															
2P α BHC (319 84 6)															
3P β BHC (319 85 7)															
4P γ BHC (58 89 9)															
5P δ BHC (319 86 8)															
6P Chlordane (57 74 9)															
7P 4 4 DDT (50 29 3)															
8P 4 4 DDE (72 55 9)															
9P 4 4 DDD (72 54 8)															
10P Dieldrin (60 57 1)															
11P α Endosulfan (115 29 7)															
12P β Endosulfan (115 29 7)															
13P Endosulfan Sulfate (1031 07 8)															
14P Endrin (72 20 8)															
15P Endrin Aldehyde (7421 93 4)															
16P Heptachlor (76 44 8)															

CONTINUE ON PAGE V 9

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CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1)	OUTFALL NUMBER
	002

Form Approved OMB No. 158-R0173

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK X			3. EFFLUENT							4. UNITS		5. INTAKE (optional)		
	a. [illegible]	b. [illegible]	c. [illegible]	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES (continued)															
17P Heptachlor Epoxide (1024 57 3)															
18P PCB 1242 (11469 21 9)															
19P PCB 1254 (11097 69 1)															
20P PCB 1221 (11104 28 2)															
21P PCB 1232 (11141 16 5)															
22P PCB 1248 (12672 29 6)															
23P PCB 1260 (11096 82 5)															
24P PCB 1016 (12674 11 2)															
25P Toxaphene (8001 35 2)															

SA 038071

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F 0

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (*the area to the left of the label space lists the information that should appear*), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI (*except VI-B which must be completed regardless*). Complete all items if no label has been provided. Refer to the Instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK "X" YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X	
B. Does or will this facility (*either existing or proposed*) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X		
D. Is this a proposed facility (*other than those described in A or B above*) which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)		X	
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP ALLIED PAPER INCORPORATED BRYANT MILL

IV. FACILITY CONTACT

A. NAME & TITLE (*last, first, & title*)	B. PHONE (*area code & no.*)
2 STOEFELER U G MANAGER	616 345 7131

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 2030 PORTAGE ST

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 KALAMAZOO	MI	49001

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 2030 PORTAGE ST BRYANT MILL

B. COUNTY NAME

KALAMAZOO

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (*if known*)
6 KALAMAZOO	MI	49001	

EPA Form 3510-1 (8-80)

CONTINUE ON REVERSE

SA 038072

CONTINUED FROM THE FRONT

VII. SIC CODES (4-digit, in order of priority)

A. FIRST: 2621 (specify) Manufacture of Paper

B. SECOND: (specify)

C. THIRD: (specify)

D. FOURTH: (specify)

VIII. OPERATOR INFORMATION

A. NAME: [illegible]

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other" specify.)
F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

D. PHONE (area): A

E. STREET OR P.O. BOX: 2000 PORTAGE ST

F. CITY OR TOWN: KALAMAZOO

G. STATE: MI

H. ZIP CODE: 49001

IX. INDIAN LAND

Is the facility located on Indian land? ☐ YES ☐ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): N MI0000779

B. UIC (Underground Injection of Fluids): U

C. RCRA (Hazardous Wastes): R

D. PSD (Air Emissions from Proposed Sources): P

E. OTHER (specify) (specify)

F. OTHER (specify) (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Manufacture of paper from purchased pulp and other purchased raw materials

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
T. E. Flanagan Vice President Operations	T. E. Flanagan	12-15-81

COMMENTS FOR OFFICIAL USE ONLY

C

EPA Form 3510-1 (6-80) REVERSE

SA 038073

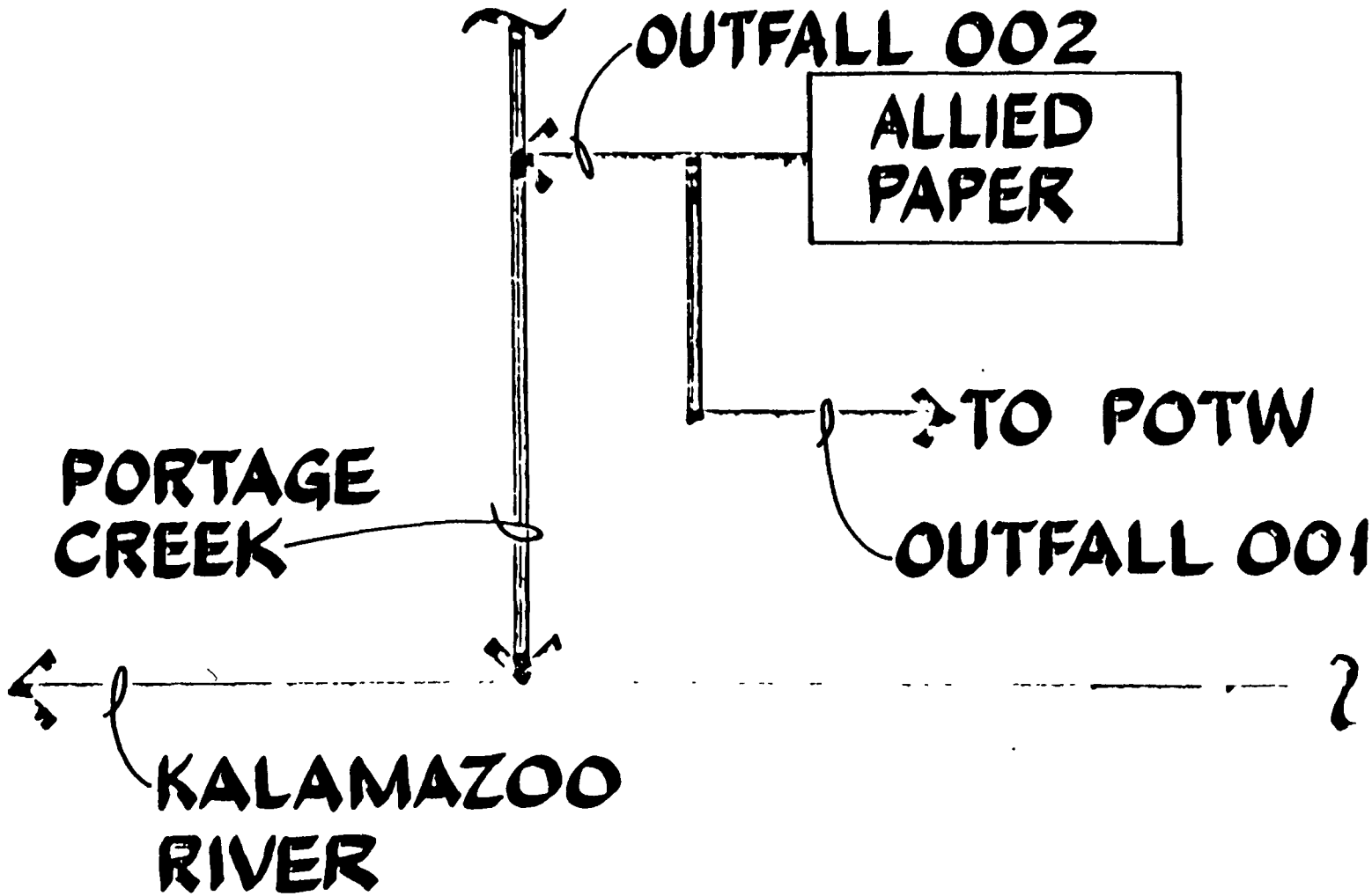
NPDES Permit Reissuance

M10000779

ALLIED PAPER, INC.
BRYANT MILL

0001789

93-776



0001790

SA 008909

KALAMAZOO RIVER IS A WATER QUALITY LIMITED RIVER.

WATER QUALITY STANDARD FOR D.O.:

- 4 mg/L minimum
- 5 mg/L average

0001791

SA 008910

		BPT		Proposed	
		MO. AVG.	DAILY MAX.	Permit Daily Max.	% of BPT Avg
BOD lb/day	MAY-OCT	2217	4277	389	18%
	NOV-APRIL	2217	4277	836	38%

(TSS LIMITATIONS ARE SIMILAR)

0001792

SH 008911

PRIMARY ISSUE

- ARE PROPOSED PERMIT LIMITS NECESSARY TO MEET WATER QUALITY STANDARDS IN KALAMAZOO RIVER

Summer: yes.
Winter: BPT [illegible]

SA 003912

0001793

MAY 1972 - WRC CONFERENCE

- COURCHAINE SPEAKS ABOUT DNR COMPUTATIONS
- 385 lb/day BOD LIMIT FIRST MENTIONED
- REQUIRED TO MAINTAIN 5mg/L D.O. IN PORTAGE CREEK

T

0001794

SA 008913

MID - 1974

- DRAFT NPDES PERMIT ISSUED
- 385 lb/day BOD SUMMER LIMIT
- 770 lb/day BOD WINTER LIMIT

SA 008914

0001795

AUGUST 1974 - LETTER FROM DNR TO EPA RE: DRAFT PERMITS

- WINTER/SUMMER RATIO FOR DISCHARGERS TO KALAMAZOO RIVER IS 2.7
- ALLIED DISCHARGE TO PORTAGE CR.
- ALLIED WINTER LIMIT BASED ON 35 lb BOD/cfs - 770 lb/day (770/385 = 2.0)

0001796

SH 088915

DECEMBER 1974 - NPDES PERMIT ISSUED

- SUMMER BOD LIMIT 389 lb BOD/day max.
- WINTER BOD LIMIT 500 lb BOD/day avg.
  770 lb BOD/day max.

0001797

SA 008916

FEBRUARY 1975 - LETTER FROM ZOLLNER TO STOEFFLER

- DOCUMENTATION OF COMPUTATIONS
- BASED ON SIMPLE PROGRAM USING VARIATION OF STREETER-PHELPS
- 385 lb. BOD/day BASED ON 7Q10/ SUMMER TEMP/BRYANT MILL POND
- IF BRYANT MILL POND REMOVED - 560 lb/day LIMIT RECOMMENDED
- INCREASED BOD LIMITS IF FLOW IN PORTAGE CREEK HIGHER
- AT 650 lb BOD/day, KALAMAZOO RIVER BECOMES LIMITING

0001799

SA 008917

1976-KALAMAZOO RIVER MODELLING STUDY

- 389 lb/day LIMIT FOR ALLIED USED AS A "GIVEN" IN MODELLING OF KALAMAZOO RIVER

0001799

088918 SH

1976 - BRYANT MILL POND REMOVED

- ALLIED REQUESTS SUMMER BOD LIMIT RAISED TO 560 lb/day

0001300

SA 008919

JAN 1980 ?
17 DEC 1980

1978- DNR TURNS DOWN REQUEST FOR BOD INCREASE

- D.O. SAG IN KALAMAZOO RIVER NEAR PORTAGE CREEK CLAIMED

0001801

SA 008920

<u>1975 TO PRESENT</u> - ONGOING D.O. MEASUREMENTS IN PORTAGE CREEK

- D.O. DURING WINTER MONTHS = 6-12

0001802

SA 008921

OCTOBER 1982 - DNR WATER QUALITY SURVEY IN KALAMAZOO RIVER

- BOD LOADS = 2.3 × CURRENT WINTER DISCHARGE LIMITS
- FLOW ROUGHLY 2 × 7Q10
- MINIMUM D.O. FOUND = 4.8 mg/L
- ALL WATER QUALITY STANDARDS MET

0001803

SA 008922

JULY 1983 – DNR MODELS KALAMAZOO RIVER UNDER WINTER CONDITIONS

- FLOW = 7Q10 (IS ACTUALLY EXCEEDED APPROXIMATELY 98 PERCENT OF TIME)
- TEMP = 17°C (10° C MORE APPROPRIATE)
- ALL DISCHARGERS AT BPT BOD LIMITS
- ALL WATER QUALITY GOALS EXCEEDED (MIN. D.O. > 5)

0001804

SA 008923

FEBRUARY 1984 – DRAFT PERMIT ISSUED FOR PUBLIC COMMENT

0001805

SH 085924

		MO. AVERAGE	DAILY MAX.
BOD lb/day	MAY-SEPT.	—	389
	OCT.	612	1181
	NOV.-APRIL	2217	4277

0001806

SH 008925

MAY 2, 1984 - LETTER FROM MDNR TO ALLIED

~~OBJECTS~~ POINTED OUT THAT

- EPA ~~VETOES~~ INCREASE IN BOD DUE TO ANTI-BACKSLIDING POLICY (40 CFR 122.44)
- DRAFT PERMIT LIMITATIONS CHANGED BACK TO OLD STANDARDS

SH 089926

MAY 31, 1984 - LETTER FROM ALLIED TO MDNR

- FORMALIZED REQUEST FOR DRAFT PERMIT MODIFICATION (BACK TO INCREASED LIMITS!)
- REQUEST IN ACCORDANCE WITH 40 CFR 122.62
  - ALTERATIONS - INCREASED MILL PRODUCTION
  - NEW INFORMATION - OCT. 1982 SURVEY (JULY 1983 MODELING)
  - NEW WISCONSIN REGULATIONS N.A. in MICHIGAN (WISCONSIN RULES)
    - WISCONSIN EXPERIENCE ALONG FOX & WISCONSIN RIVERS

VALID POINT
PERMIT ISSUED 12-74
NEW INFO FROM
SURVEY OF 1976
CONFIRMED, 1982

000180

SA 008927

MAY 31, 1984 - LETTER FROM ALLIED TO MDNR (CONTINUED)

- NEW WISCONSIN REGULATIONS (CONT'D)
  - FLOW/TEMP/CLUSTER VARIABLE PERMITS
  - CONCEPTS NOT IN USE IN 1974 WHEN LIMITS ESTABLISHED
- CORRECT MISTAKES
  - STRINGENT WINTER LIMITS NOT NECESSARY
  - LIMITS ORIG. SET FOR PORTAGE CR., NOT THE KALAMAZOO RIVER
  - CURRENT PERMIT DISCRIMINATOR

PROPOSED RULE (NOT PROMULGATED).

SH 088928

JUNE 1984 – MEETINGS BETWEEN DNR AND ALLIED

- ALLIED ADVISED THAT EPA VETO (?) NO LONGER LIMITING FACTOR
- WRC RULES 1090 & 1098 INVOKED
- STAFF INTERPRETATIONS PRECLUDE PERMIT MODIFICATION

(1) RC MAKES DECISIONS ON RULES 1090 & 1098 (BASED UPON STAFF RECOMMENDATION)

H5 008929

DNR STAFF INTERPRETATIONS OF RULES 1090 AND 1098

- IF WATER QUALITY LIMITED, MUST BE CONSIDERED AS SUCH YEAR ROUND, EVEN IF LIMITATIONS OCCUR ONLY IN A SINGLE SEASON

- IF QUALITY IMPROVES THROUGH ENFORCEMENT OF LIMITS, ANTIDEGRADATION WILL BE JUDGED AGAINST THE NEW QUALITY

- EVEN IF WATER QUALITY BASED LIMITS ARE MORE RESTRICTIVE THAN NECESSARY. THEY CAN NEVER BE RELAXED

0001811

SA 008930

(CONTINUED)

DNR STAFF INTERPRETATIONS OF RULES 1090 & 1098

- IF TREATMENT FACILITIES INSTALLED, THEY MUST BE EFFICIENTLY OPERATED FOREVER, REGARDLESS OF COST OR NECESSITY

  True in concept

- PERMITS MUST BE BASED ON 7Q10 FLOW YEAR ROUND (But we do not do this)

- RULES DO NOT PERMIT SEASONAL/FLOW, TEMP VARIATIONS

F

0001812

SH 008931

ALLIED'S INTERPRETATION:

WATER RESOURCES COMMISSION RULES 1075, 1090, 1098

- SEASONAL TEMPERATURE VARIATIONS RECOGNIZED
- WATER QUALITY STANDARDS APPLY TO FLOWS ≥ 7Q10
- LIMITATIONS ARE TO BE DESIGNED TO MEET WATER QUALITY STANDARDS
- NONDEGRADATION POLICY DOES NOT APPLY TO KALAMAZOO RIVER
- RULES DO NOT PRECLUDE PERMIT MODIFICATIO
- RULES DO NOT PRECLUDE SEASONAL/

0001813

SH 003932

WHY WE ARE HERE

- HISTORY OF ALLIED'S EFFORTS TO DATE
- ALL DATA POINTS TOWARD THE LIMITS THAT WERE PROPOSED BY STAFF IN FEBRUARY DRAFT PERMIT
- STAFF REPORTED EPA VETOED? FEBRUARY PROPOSED LIMITS 40 CFR 122.44
- ALLIED REQUESTED MODIFICATION BE CONSIDERED IN ACCORDANCE WITH 40 CFR 122.62 : NOT ANSWERED
- STAFF RELIES INSTEAD (PRESUMABLY) ON INTERPRETATION OF RULES

0001314

SA 008933

(CONTINUED)

WHY WE ARE HERE

- ALLIED CLAIMS INTERPRETATIONS ARE INCONSISTENT WITH RULES, STATUTES AND PRACTICE

OPINION

- PRESENTLY PROPOSED LIMITS ARE TOO HARSH, BURDENSOME, NOT NECESSARY, EXCEED AUTHORITY OF DNR
- POLICY CONSIDERATIONS

SA 008934

OUR REQUEST

- INSTRUCT DNR STAFF (WITH OUR ASSISTANCE) TO PROCESS REQUESTED MODIFICATION WITH EPA
- IF EPA WILL WITHDRAW ITS OBJECTIONS, REINSTATE THE FEBRUARY DRAFT LIMITS
- ALTERNATIVE: IF PROPOSED PERMIT IS APPROVED, WE RESPECTFULLY RESERVE THE RIGHT TO PETITION FOR REVIEW OF PERMIT LIMITS

93-433

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
All Outfalls No. 390222
Kalamazoo County
Kalamazoo, Michigan
July 18-19, 1977

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, July 18, 1977.

The results of this survey did not meet the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. The BOD_5 loading from outfall 390006 (002) was from 11 percent to 23 percent over limitations specified in the permit (Table 3).

Comparison of the results from the composite sample split between the company and the Environmental Protection Bureau (EPB) Laboratory show EPB concentrations higher for all parameters measured, except for settleable solids on outfall 002 (Table 4).

Comparison of the results of this survey with the survey performed on August 16-18, 1976 show that flow has decreased and TOC has increased slightly. (Table 5)

Underdrainage of the sludge disposal area, which is not covered in the permit, continues to discharge into Portage Creek (Table 1).

Survey Comments

Samples were collected from the Bryant clarifier discharge to the City of Kalamazoo sanitary sewer system (Table 1).

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., to Portage Creek and to check for compliance with the NPDES Permit No. MI0000779.

Plant Processes

Allied Paper, Inc. operates two mills in Kalamazoo. The Monarch Mill utilizes two Fourdrinier paper machines to produce bible paper and carbon tissue for "one time" carbon paper. The Bryant Mill also produces bible paper and other specialty papers using five Fourdrinier paper machines. All the machines were in operation during the survey (Figure 1).

Under normal production 275 tons of paper products can be produced a day. Pulp utilized at both mills has previously been treated in the Kraft process at other locations.

Both mills together employ approximately 475 people. The mills operate on a 5 or 6 day a week schedule depending on demand. The week previous to the survey the mills operated for 6 days. Production when the mills are operating is 24 hours a day.

Water, Wastewater & Treatment

Process water used at both the Monarch and Bryant Mills is obtained from Portage Creek. Water for the Monarch Mill is obtained upstream from the Monarch Dam and water for the Bryant Mill is obtained across from Cork Street. Water for both mills is passed through sand filters prior to its use.

Wastewater generated at both mills is treated as depicted in Figure 2. Wastewater received at the 110-foot circular Bryant clarifier originates from the excess white water and from the zeolite and lime soda ash softening process used for boiler feed water. Treatment provided at the Bryant clarifier consists of settling with the effluent going to either the City of Kalamazoo treatment system or the Monarch clarifier. The split of the flow depends on how much additional loading can be placed on the Monarch clarifier without exceeding its discharge limitations into Portage Creek.

Wastewater loadings on the 90-foot circular Monarch clarifier, in addition to the flows from the Bryant clarifier, are excess white water and zeolite waste from the boiler feed water system. Alum and a coagulation agent are added in the Monarch clarifier to increase settling characteristics. The effluent from the clarifier discharges to Portage Creek through outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property across Portage Creek from the Monarch clarifier. The sand filter backwash from the Bryant Mill is discharged directly to Portage Creek. This discharge is not covered in the NPDES Permit.

Potable water for both mills is obtained from the City of Kalamazoo. Domestic wastewater is discharged into the city's treatment system.

MCNR 883948

Underdrainage from the sludge disposal area was observed being discharged into Portage Creek upstream from the Bryant Mill intake. Flow during the survey was monitored and results of samples collected are included in Table 1.

Survey Procedures

The flows and composite samples were obtained as follows:

Outfall	Flow Measurement	Sampling
390006 (002)	49" full channel weir - company installed. Stevens flow recorder.	Automatic air activated.
Sludge leachate	60° v-notch weir - staff installed. Stevens flow recorder.	Automatic scoop type.
Bryant Mill discharge to City	46-3/4" rectangular weir w/end contractions - company installed. Stevens Flow Recorder.	Automatic air activated.

The water level recorders at 002, sludge leachate and at the Bryant Mill discharge to the city sewer provided a continuous account of the liquid level or head above the crest of each weir on a head versus time graph for the duration of the survey period. The total volume of wastewater over each weir during the survey period was computed from the graph.

The samplers at the sludge leachate obtained samples proportional to the instantaneous flow over the weir at a timed interval.

Individual grab samples were collected from each of the three outfalls for selected physical and chemical analyses.

The following formula was used to compute the kilograms per day of various wastewater constituents discharged: kg/day = flow (M^3/d) x conc. (mg/l) x 0.001.

The composite and grab samples were analyzed by the Environmental Protection Bureau Laboratories located in Lansing.

All samples were preserved according to Table 6. The results of the physical and chemical analyses are presented in Tables 1 & 2.

Allied Paper, Inc.

Table 1 Analyses of composite samples.

Outfalls	390006 (002)		Sludge Leachate		Bryant Mill Clarifier to City Sewer	
Survey Period From	7-18-77 - 1150		7-18-77 - 1225		7-18-77 - 1240	
To	7-19-77 - 1150		7-19-77 - 1225		7-19-77 - 1240	
Computed flow rate* (M^3/day)	11,500		74		8,800	
Highest flow rate (M^3/day)	20,700 @ 2315		130 @ 2330		16,400 @ 2258	
Lowest flow rate (M^3/day)	7,300 @ 0608		44 @ 1612		450 @ 0344	
	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day
5-day BOD	19	220	< 5	--	100	880
COD	22	250	13	0.96	52	460
T.O.C.	12	140	--	--	--	--
Color (C.U.)	7	--	11	--	21	--
Turbidity (F.T.U.)	17	--	17	--	290	--
Suspended solids	7	80	32	2.4	69	610
Dissolved solids	470	5,400	420	31	580	5,100
Settleable solids	--	--	29	2.1	26	230
Phenols	< 0.00001	--	0.00003	0.000002	0.00004	0.0004
	ug/l		ug/l		ug/l	
PCB 1242	< 0.1	--	< 0.1	--	< 0.1	--
PCB 1254	< 0.1	--	< 0.1	--	< 0.1	--
PCB 1260	< 0.1	--	< 0.1	--	< 0.1	--

* Flow rates used in the computation of kg/day.
To obtain MGD multiply M^3/day by 0.000264
To obtain lbs/day multiply kg/day by 2.2046

MCNR 003941

Allied Paper, Inc.

Table 2 Analyses of grab samples.

Date	Time	Temp.[1] °C	pH[1] S.U.	Oil & Grease mg/l	BOD mg/l	Suspended solids mg/l	Settleable solids mg/l	D.O. mg/l
390006								
7-18-77	2145	32	6.6	3	13	15	--	5.4
7-19-77	0710	31	6.9	2.5	15	4	--	5.6
Sludge Leachate								
7-18-77	2200	17	7.3	--	< 5	12	--	--
7-19-77	0750	16	7.4	--	< 5	7	--	--
Bryant Discharge to City								
7- 8-77	2230	33	6.7	--	120	78	25	--
7-19-77	0800	35.5	6.8	--	140	74	5	--

1 - Values determined in the field at time of sampling.

Table 3 Comparison of survey results with the facility's NPDES Permit and monthly operating report.

Parameter (Unit)	NPDES Permit Final Limitations		July Monthly Operating Report				Survey Results[1]
	Daily Average	Daily Maximum	Monthly Average	Monthly Maximum	7-18-77	7-19-77	min. max.
390006 (002)							
Flow (M^3/day)	--	--	9,710	17,195	10,708	8,941	11,500* (10,400, 12,300
BOD_5 (kg/day)	--	177	138	334	64	79	220 (200, 230)
(mg/l)	--	--	--	--	--	--	19 (13, 15)
Total susp. sol. (kg/day)	--	230	127	380	21	170	80
(mg/l)	--	--	--	--	--	--	7 (15, 4)
Settleable solids (kg/day)	--	--	--	--	--	--	--
(mg/l)	--	--	0.04	0.05	0.05	0.05	--
Oil & Grease (mg/l)	--	--	--	--	--	--	(3, 2.5)
pH (S.U.)	not <6.5 nor >9.5		--	7.4 min. 6.5	6.9	6.8	(6.6, 6.9)

* Company reports flows for the same time span as 10,400 M^3/day.
1 - Survey results are for the composite sample. Grab sample ranges are shown in parantheses ( ).
To obtain MGD multiply M^3/day by 0.000264 To obtain lbs/day multiply kg/day by 2.2046

19 x Flow = kg/day

Table 4 Comparison of the laboratory analytical results obtained by the Allied Paper, Inc. and the Environmental Protection Bureau from the split composite samples.

Outfall	390006 (002)		Sludge		Bryant Mill Discharge to City	
	E.P.B. mg/l	Allied Paper mg/l	E.P.B. mg/l	Allied Paper mg/l	E.P.B. mg/l	Allied Paper mg/l
5-day BOD	19	7.6	< 5	--	100	62
Suspended solids	7	2.0	32	18.0	69	42
Settleable solids	--	0 *	29	0.05 *	26	0.05 *

* Values reported as ml/l.

Table 5 Comparison of the previous survey results with the results obtained in this survey at Allied Paper, Inc.

Outfall	390006		390006		390006	
Survey Date From	8-16-76 - 1300		8-17-76 - 1335		7-18-77 - 1150	
To	8-17-76 - 1330		8-18-76 - 1335		7-19-77 - 1150	
Flow Rate (M^3/day)	13,800		16,200		11,500	
	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day
5-day BOD	14	200	17	270	19	220
COD	20	270	21	340	22	250
T.O.C.	8.7	120	9.7	160	12	140
Suspended solids	6	90	2	32	7	80
Dissolved solids	468	6,450	448	7,260	470	5,400
Phenols	0.68	8.2	0.45	7.3	< 0.00001	--

MDNR 003942

Table 6 Sample Preservation

Parameter	Preservative
COD & TOC	10 drops H_2SO_4/250 ml (to pH <2).
D.O.	Fixed on site.
Oil & Grease	1 ml 1 1 H_2SO_4/250 ml (to pH <4).
Phenolics	2 ml 10% $CuSO_4$ + H_3PO_4 (to pH 4)/250 ml.

All samples cooled to 4°C upon collection.

Survey by: Gary Boersen, Sanitary Engineer
Larry Elmleaf, Water Quality Investigator
Richard Irvin, General Foreman

Contact with Management: U.G. Stoeffler

Hydrocarbon Analyses by: Tom Wilcox, Chemist

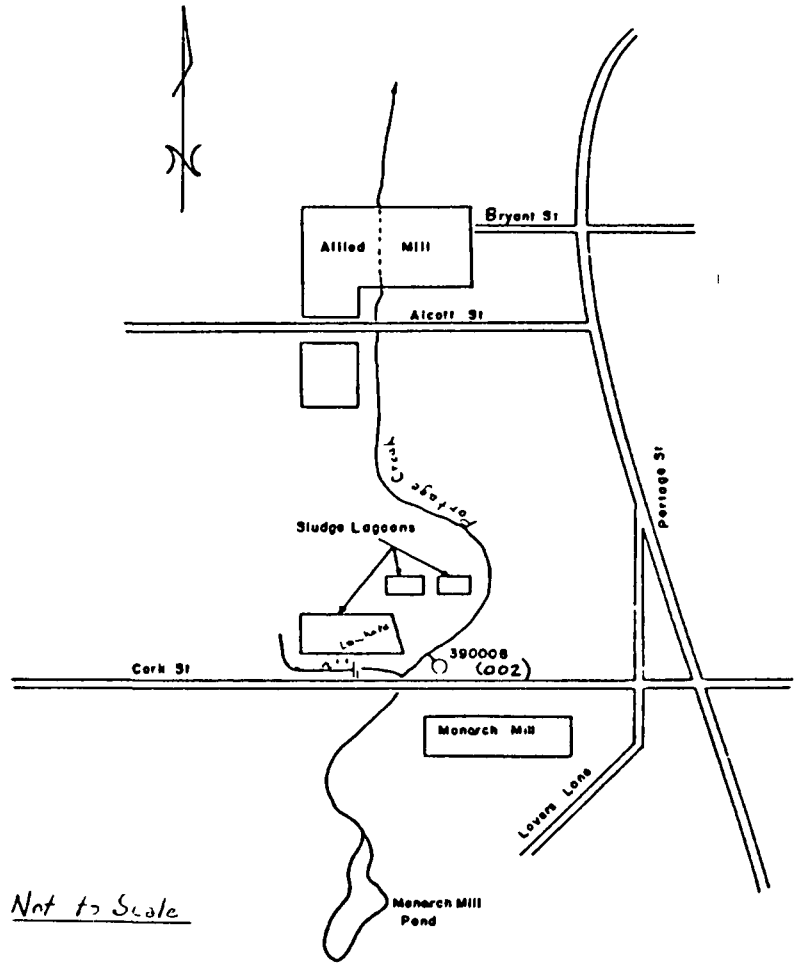
Physical & Chemical Analyses by: Ray Wimmer, Chemist

Report by: Gary Boersen
Larry Elmleaf
Point Source Studies Section
Environmental Services Division
Environmental Protection Bureau
Michigan Department of Natural Resources

Distribution "A"
MM

FIGURE 1

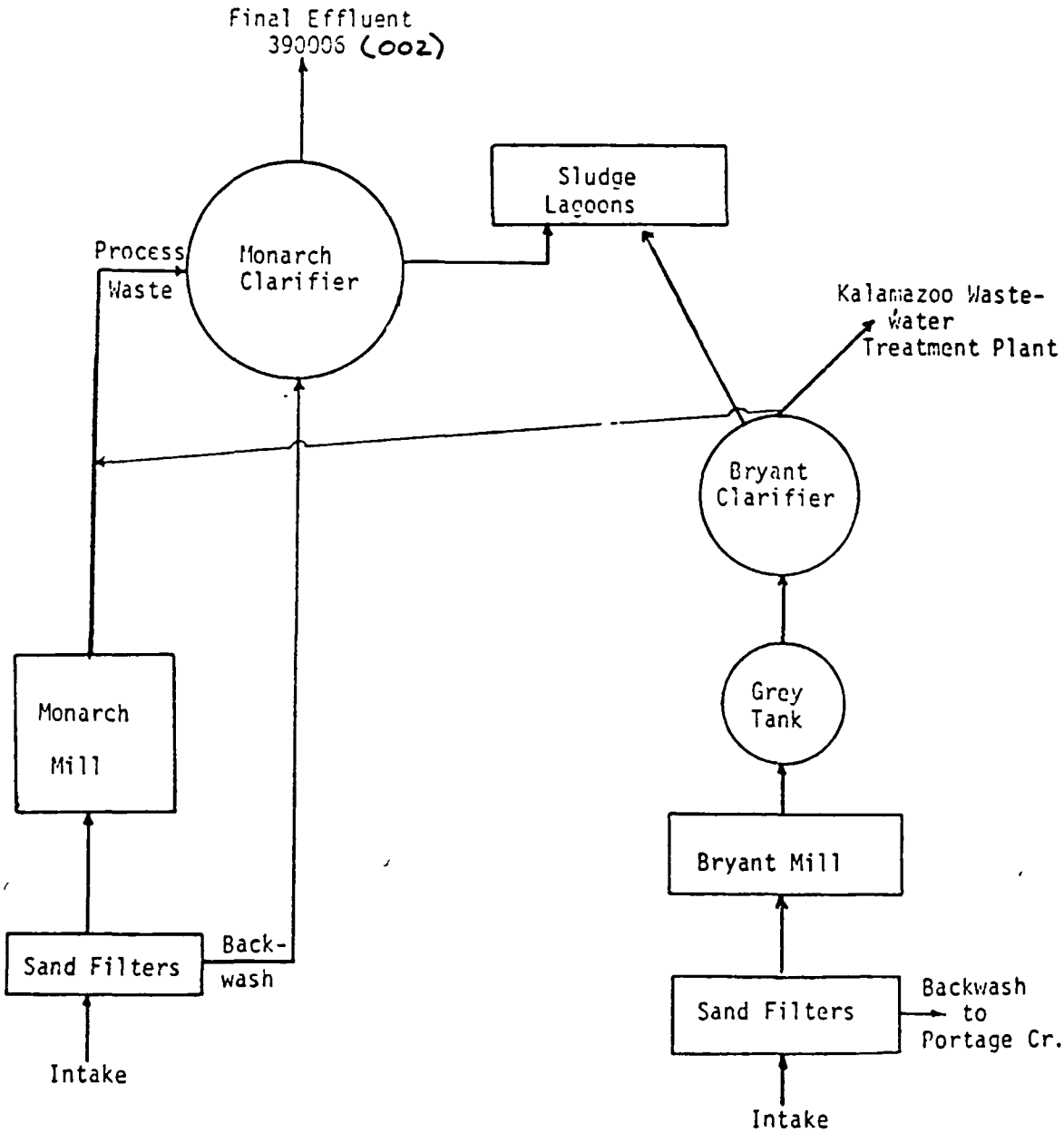
ALLIED PAPER MILLS
KALAMAZOO



Not to Scale

MONE 003943

Figure 2 [illegible] Incorporated, [illegible]



93-500

SCM ALLIED PAPER INCORPORATED

INTER-OFFICE MEMO

TO: Guy Mahoney

FROM. Dave Kirk

OFFICE.

OFFICE.

SUBJECT PCB Analyses

DATE July 28, 1980

This note is in reply to your request today for an update on PCB analyses of our tobacco industry papers.

I am attaching a copy of our most recent analysis for PCB which was made in August of 1978. At that time no detectable PCB was found in cork tipping, white tipping or 646 plug wrap. We have no reason to think this situation has changed in either our raw materials, our process or in the products we are selling to Archer.

28 July 1980

attachment
br

cc: T.Flanagan
U.G.Stoeffler

SCM ALLIED PAPER INCORPORATED

TO: D. C. Kirk

FROM: U. C. Stoeffler

OFFICE:

OFFICE:

SUBJECT: PCB Analysis

DATE: September 13, 1978

As per your August 16, 1978 memo we sent samples of a 21.5# Cork Tipping, O.N. 11-0943 (Sample A), 38 gm White Tipping, O.N. 05J-1383 (Sample B), 646 Plug Wrap, 11-0832 (Sample C), Rely Tampon Wrap, 11-0951 (Sample D) to Environmental Research Group Inc. in Ann Arbor, Michigan for PCB analysis. Additional samples were retained. The results show the level of PCB in any of the Aroclors are well below the permissible level. Previous analyses on tipping papers have shown the same levels as those shown below. Results are expressed in parts per million.

Sample	PCB Aroclor 1242	PCB Aroclor 1254	PCB Aroclor 1260
A	Non-detectable	Non-detectable	Non-detectable
B	" "	" "	" "
C	" "	" "	" "
D	" "	" "	" "
Detection Limit	0.10	0.20	0.15

The total cost for this analysis was $270 based on $90 for the first sample and $60 for each additional sample. This cost is higher than I originally told you because the samples were solid state rather than liquid and require additional steps for analysis preparation. We will check with Woodson-Tenent Laboratories in Memphis, Tennessee for their cost on future analysis of PCB.

br

cc: F.Harrison
S.Oakleaf
M.L.Smith
File

92067 - B-5.3/038

MICHIGAN WATER RESOURCES COMMISSION
BUREAU OF WATER MANAGEMENT
ENVIRONMENTAL PROTECTION BRANCH
DEPARTMENT OF NATURAL RESOURCES

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER INC
Monarch Mill
AII Outfalls No 390222
Kalamazoo County
Kalamazoo, Michigan
May 5-7, 1975

Survey Summary

Wastewater monitoring was performed during two twenty-four hour survey periods starting Monday, May 5, 1975

The results of this survey met the initial limitations in the facility's National Pollutant Discharge Elimination System Permit (NPDES), No MI0000779 except for three out of four pH grab samples The pH of all the grab samples ranged from 5.8 to 6.5 The pH of the two 24-hour composite samples were 6.4 and 6.9 (Tables 1 and 2) Plant personnel said that the low pH was possibly due to a malfunction in the automatic alum feed system over the weekend before the survey

The survey results agreed well with the results reported by the company in the monthly operating report (Table 4). The two twenty-four hour composite samples were split with the company and analyzed in their laboratory. The results of the company's analysis agrees well with our laboratory results (Table 5)

Survey Comments

The company is monitoring pH from a composite sample and using the hexane extractable test for measuring oil and grease

The company appears to be reporting settleable solids in grams per liter on the monthly operating report

A heavy floc was being discharged over the final weir on May 5, 1975 at 5 00 p m This problem was still occurring at 10 20 p m on the same day and a grab sample collected at that time showed 110 mg/l of suspended solids (Table 2) In the afternoon of May 6, 1975 there was foam in Portage Creek from the plant discharge which was evident approximately 2000 feet downstream.

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Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper Inc., a principal discharger, to Portage Creek and to check for compliance with the NPDES Permit No. 0000779

Plant Processes

The wastewater treatment plant at the Monarch Mill of Allied Paper Inc treats all of the wastewater from the Monarch Mill and some of the process wastewater from the Bryant Mill. The rest of the process wastewater from the Bryant Mill is discharged to the city sanitary system. Generally about one third of the effluent from the treatment system originates in the Bryant Mill and two-thirds originates in the Monarch Mill. At the time of the survey the effluent from the wastewater treatment plant was approximately 50% Bryant Mill wastewater and 50% Monarch Mill wastewater.

The Monarch Mill produces bible paper and carbon tissue for "one time" carbon paper. The mill has two fourdrinier paper machines which were operating during the survey.

The Bryant Mill produces bible paper and other speciality paper. Four of the five fourdrinier paper machines at the Bryant Mill were operating during the survey.

Both plants use virgin pulp in a standard papermaking operation Both plants were operating five days a week, 24 hours a day.

Water, Wastewater and Treatment

Potable water for the Monarch Mill is obtained from the City of Kalamazoo All domestic wastewater goes to the Kalamazoo sanitary sewer system. Process water is obtained from Portage Creek. This water is treated using sand filters before being used in the mill.

The main source of process wastewater treated in Monarch Mill's 90-foot clarifier is excess white water from the paper machines. The backwash water from Monarch's sand filters are also treated in the clarifier. Alum and a floculating agent are added to influent to the clarifier to aid in floculation and settling. The effluent from the clarifier discharges to Portage Creek through outfall 390006. The sludge from the clarifier is disposed of on plant property adjacent to Portage Creek.

Survey Procedure

An existing 48-inch full-channel weir on the clarifier was used by the survey crew.

The weir was equipped with a water level recorder and an automatic sampler. The water level recorder provided a continuous account of the liquid level or head above the crest of the weir on a head versus time graph for the duration of each survey period. The total volume of wastewater over the weir during the survey period was computed from the graph. The automatic sampler obtained samples proportional to the instantaneous flow over the weir at 15-minute intervals. These individual samples were deposited in a clean container to make up a composite sample representative of the total flow over the weir during the survey period.

A series of individual grab samples were collected from outfall 390006 (002) for selected physical and chemical analyses.

All samples collected were preserved according to Table 6.

The composite and grab samples were transported to the Bureau of Water Management laboratory located in Lansing for selected quantitative physical and chemical analyses. The following formula was used to compute the pounds per day of various wastewater constituents discharged:

lbs/day = flow (mgd) x conc. (mg/l) x unit weight of water (8.34 lbs/gal).

The results of the physical and chemical analyses are presented in Tables 1 through 3.

Table 1 Quantitative analyses of the two composite samples collected from Allied Paper Inc., Monarch Mill discharge, 390006 (002), to Portage Creek to determine the concentration of the wastewater constituents present in the samples and the computed pounds per day (lbs/day) of these constituents being discharged. Also noted are the highest and lowest flow rates recorded during the respective survey periods.

From	4:55 pm - 5-5-75		6:00 pm - 5-6-75	
To	3:55 pm - 5-6-75		3:50 pm - 5-7-75	
Total flow monitored (gal)	2,640,000		3,340,000	
Computed flow rate (mgd) *	2.78		3.35	
Highest flow rate (mgd)	3.78		4.06	
Lowest flow rate (mgd)	1.79		2.64	
pH (S.U.)	6.4		6.9	
	mg/l	lbs/day	mg/l	lbs/day
5-day BOD	23	530	35	980
COD	57	1300	86	2400
TOC	22	510	41	1100
Total solids	464	11200	424	11800
Suspended solids	24	560	8	200
Settleable solids	2	50	< 8	--
Sulfates (SO_4)	--	--	156	4400
Color (S.U.)	4	--	9	--
Turbidity (J.C.U.)	59	--	54	--

* Flow rates used in the computation of lbs/day

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Table 2 Quantitative analyses of grab samples collected from Allied Paper Inc., Monarch Mill discharge 390006 (002) to determine concentrations of selec physical and chemical constituents present in the wastewater.

Outfall	390006 (002)	390006 (002)	390006 (002)	390006 (002)
Time	10:20pm	8:40am	3:35pm	8:07am
Date	5-5-75	5-6-75	5-6-75	5-7-75
Temp., °C	23	22.5	23	23.5
pH (S.U.)	5.8	6.3	6.5	6.4
	mg/l	mg/l	mg/l	mg/l
BOD	28	20	43	47
COD	110	47	75	170
TOC	--	17	42	46
Total solids	520	488	476	432
Suspended solids	110	2	15	1
Settleable solids	104	< 2	< 15	< 1
Oil & Grease	< 1	< 1	1	2
Sulfate	210	190	170	152
Color (S.U.)	4	6	7	16
Turbidity (J.C.U.)	250	26	90	46

Table 3 Quantitative analyses of a 48-hour grab composite sample collected from Allied Paper Inc., Monarch Mill discharge, 390006 (002) to the Portage C to determine concentrations of select chlorinated hydrocarbons.

Outfall	390006 (002)
Date	5-5-75 to 5-7-75
PCB 1242	< 0.01
PCB 1254	< 0.01
PCB 1260	< 0.01
DEHP	< 0.5
DBP	< 1.5

Note: Results reported in ug/l.

PCB - Polychlorinated biphenyls
DEHP - Diethylhexylphthalates
DBP - Dibutylphthalates

Table 4 Comparison of results obtained during the survey at Allied Paper Inc., Monarch Mill with the facility's NPDES Permit, No. MI0000779 and the monthly operating report for May, 1975.

Source - 390006 (002)

Parameter (Unit)	NPDES Permit Limitations Average	NPDES Permit Limitations Maximum	Monthly Operating Report 5-5-75	5-6-75	5-7-75	Average	Survey Results * 5-5-75 / 5-6-75	Survey Results * 5-6-75 / 5-7-75
BOD5 (lbs/day)	1205	2210	285	480	660	759	500	980
Suspended solids (lbs/day)	825	2300	460	280	235	327	560	200
Settleable sol.	--	--	10	10	5	--	10, <2, <10, <1	
Oil & Grease (mg/l)		10	--	--	0	0	<1, <1, 1, 2	
pH (range) (S.U.)	6.5 - 9.5		6.9	6.5	6.9	6.9	5.8, 6.3, 6.5, 6.4	

* - The survey results reported for BOD5 and suspended solids are from 24-hour composite samples. The other survey results are from grab samples.

Table 5 Comparison of the analysis of the two composite samples collected at Allied Paper Inc., Monarch Mill, discharge 390006 (002). The composite samples were split with the company and analyzed by their laboratory (AP Lab) and the Water Resources Commission laboratory (WRC Lab).

	WRC Lab	AP Lab	WRC Lab	AP Lab
From	5-5-75	5-5-75	5-6-75	5-6-75
To	5-6-75	5-6-75	5-7-75	5-7-75
pH	6.9	7.2	7.2	7.35
	mg/l	mg/l	mg/l	mg/l
5-day BOD	23	19	35	27
Total solids	484	750	424	670
Suspended solids	24	5	8	2
Settleable solids	2	48	8	5
Turbidity	59	35	64	25

Table 6 Sample Preservation

Parameter	Preservative
BOD	Cooled to 4°C
COD	5 drops 1 1 H_2SO_4/l.
General Chemistry	Cooled to 4°C
Oil & Grease	1 ml 1 1 H_2SO_4/250 m
Pesticides, PCB's, Phthalate	100 ml hexane.

Survey by. Richard Christensen, Sa
L J McDonald, Water Qu
William Long, Water Qua

Contact with Management. Ray J Willie

Certified Operator. Ray J. Willie

Chlorinated Hydrocarbon Analyses by. Christine Kazen, Chemis

Physical & Chemical Analyses by. James Bedford, Chemist

Bacteriological Analyses by Michigan Department of Bureau of Laboratories

Report by. Richard Christensen
L J McDonald
William Long
Point Source Survey Sec
Michigan Water Resource
Bureau of Water Managem
Environmental Protectio
Department of Natural R

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Polychlorinated Biphenyl Survey of the Kalamazoo River and Portage Creek in the Vicinity of the City of Kalamazoo 1972

State of Michigan
Water Resources Commission
Bureau of Water Management
Department of Natural Resources
January, 1973

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SUMMARY

1. Significant concentrations of PCB's were found in fish from the Kalamazoo River in the vicinity of Kalamazoo during a July-August 1971 survey (Hesse and Willson, 1972).

2. Sampling of water, industrial and municipal effluents, settleable solids, and bottom sediments within the Kalamazoo area was conducted during 1972 in an attempt to isolate sources of the PCB contamination.

3. Portage Creek is a major contributor of PCB's as Aroclor 1242 to the Kalamazoo River in the City of Kalamazoo vicinity. The source of PCB's, with the possible exception of intermittent discharges from the Reed Street storm sewers, arises from the Bryant Mill Ponds' sediments and from an Allied Paper Corporation settling basin discharge between Alcott and Cork Streets.

4. The sediments in the Bryant Mill Ponds contained PCB levels up to 368 ppm. PCB's in these sediments are available for leaching to the water of Portage Creek. When the ponds were drained in July 1972, many sediments from it were washed downstream, contributing to the PCB enrichment of Portage Creek by exposing these sediments to additional water surface, erosion and decomposition.

5. The discharge from an Allied Paper Corporation settling basin contained extremely high levels of PCB's, up to 65 ppb as Aroclor 1242.

6. Another significant source of PCB contribution to the Kalamazoo River is the discharge from the Kalamazoo WWTP. Sampling is currently being conducted in the sanitary interceptor system to isolate and identify point sources.

Polychlorinated Biphenyl Survey
of the Kalamazoo River and Portage Creek in
the Vicinity of the City of Kalamazoo
1972

INTRODUCTION

Polychlorinated biphenyls (PCB's) have recently received considerable attention as an environmental contaminant because of their persistence and chronic toxicity in an aquatic ecosystem (Risebrough and de Lappe, 1972). PCB's have been commonly used as plasticizers, flame retardants, insulating and heat exchange fluids, hydraulic fluids, and as ingredients in carbonless paper and printing inks (Reynolds, 1969; Broadhurst, 1972).

Structurally related to DDT, PCB's behave similar to DDT chemically in being relatively insoluble in water, but very soluble in lipids (Nimmo, et al, 1971). Consequently, low levels of PCB's in water from industrial sources accumulate in fish and other aquatic animals to levels that may be unsafe for human consumption (Stalling and Mayer, 1972).

The Water Resources Commission (WRC) July-August, 1971 Kalamazoo River biological survey pointed to the presence of very significant levels of PCB's in fish collected from certain sections of the Kalamazoo River (Hesse and Willson, 1972). The report indicated that the primary sources of PCB input into the Kalamazoo River system were from the cities of Kalamazoo and Battle Creek.

In 1972, further sampling was conducted in the vicinity of the City of Kalamazoo to identify possible sources of PCB loss to the environment. This report covers the 1972 investigation.

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METHODS

Three types of samples were collected for PCB analysis in connection with this report: settleable solids, sediment (grab and core) and water (grab and composite).

Settleable solids were collected in 200 ml glass stoppered, wide mouth (4 cm dia.) bottles. The bottles were suspended approximately one foot below the water surfac and left in the stream eight days before collection.

Soft bottom sediments composed of organic matter, silt and clays, were collected in bottles identical to those used for settleable solids. Core sediment samples were collected by driving a length of one inch diameter electrical conduit into soft sediments, corking the end open to the atmosphere and removing the conduit from the sediments. The core was then extracted from the conduit, with the use of a plunger-like apparatus, measured, sectioned and the individual sections placed in glass stoppered bottles. Care was taken to reduce cross contamination between sampling sites with the sampler by rinsing the conduit between core samples and by pretaking several core samples at a site before keeping one for analysis.

Water samples were collected in one gallon glass jugs with teflon lined caps. One hundred milliliters of hexane was added to the jug prior to collecting the sample to act as a PCB extractant. Stream and industrial sampling was accomplished by Water Resources Commission personnel from either the District 3 (Grand Rapids) Office or the Water Quality Appraisal Section (Lansing) as indicated on each appropriate table.

All samples were analyzed by the Water Resources Commission Pesticide Laboratory in Lansing by gas chromatography. Both Aroclor 1242 and 1254 were used as analytical standards for each sample.

SAMPLING AND RESULTS

On April 20, 1972, water samples were collected from the discharges of several industries in the Kalamazoo area considered to be possible PCB users. In addition, samples were collected from Portage Creek at Michigan Avenue and from the final effluent of the Parchment Wastewater Treatment Plant (WWTP). Portage Creek receives effluents from several industries including two paper mills in the vicinity of the Bryant Mill Ponds (Figure 1). The results of the analyses show that the PCB concentrations were below the limit of detectability for all locations except Portage Creek which contained 0.47 parts per billion (ppb) as Aroclor* 1242 (Table 1). (*Aroclor is a registered trademark of the Monsanto Company).

To determine comparative PCB concentrations over a period of time, settleable solids samplers were placed on May 17, 1972, at four locations in Portage Creek and six in the Kalamazoo River in the vicinity of the City of Kalamazoo (Figure 2). After eight days exposure the settleable solids were collected and analyzed. Significant concentrations of PCB's, ranging from 0.23 to 2.63 parts per million (ppm), occurred at all the sample sites except two upstream from the Bryant Mill Ponds in Portage Creek (Table 2). The PCB's present appeared to be largely Aroclor 1254 in the Kalamazoo River above Portage Creek, Aroclor 1242 in Portage Creek and an equal mixture of both downstream from the confluence of Portage Creek and the Kalamazoo River. This data corresponds well with the results of PCB analyses conducted on fish collected from the Kalamazoo River in 1971 (Hesse and Willson, 1971). The results also tend to verify the suspicion that the Bryant Paper Mill Ponds between Cork and Alcott Streets were holding PCB containing waste in their sediments from previous paper recycling operations involving carbonless

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paper and printing inks (Chester Harvey, Personal Communication).

On July 1, 1972 the City of Kalamazoo opened the gates of the Bryant Dam at Alcott Street to drain the Bryant Ponds in connection with a municipal project. Shortly after the ponds had been drained, several water and sediment samples were collected from Portage Creek and other suspect discharges to the Kalamazoo River. Although significant PCB levels were present in sediment samples from the lower Bryant Pond, 6.53 ppm, the Lake Street site which is farther downstrea was much higher, 25.45 ppm (Figure 1 and Table 3). This may be explained in part by the previous draining of the Bryant Ponds and possible subsequent downstream transport of the more highly contaminated sediments. Water samples taken from Portage Creek at the face of the Alcott Street Dam (the gates had been closed on July 6 and the Bryant Ponds refilled by July 12, 1972) and at Michigan Avenue displayed a low upstream (0.16 ppb) and high downstream (3.60 ppb) PCB concentration similar to the sediment samples (Table 3). This twenty fold increase in concentration could be explained by the PCB contaminated water flowing in slugs received from an intermittent discharge, by the water accumulat PCB's in proportion to the distance it flowed over contaminated sediments, or by another source of PCB's entering Portage Creek downstream from Alcott Street. The level of PCB's in all the remaining water samples collected on July 12, 1972 were below the limit of detectability (Table 3).

In an effort to check on possible points of PCB input to Portage Creek between Alcott Street and Michigan Avenue, storm sewers on five streets were selected, with the assistance of Kalamazoo WWTP personnel, and sampled on July 25, 1972. At only one street, Alcott, were the storm sewers visibly discharging into Portage Creek. The PCB concentrations in the Alcott Street storm sewer waters were below the limit of detectability (Table 4). Both of the Reed Street storm sewer samples had high concentrations of PCB's. However, since both were partia submerged and a discharge was not discernible, it is quite probable that the water collected was largely Portage Creek water. A similar situation existed for the Bryant Street storm sewer due to broken walls that allowed Portage Creek water to flow into the sewer. Water samples collected from Portage Creek at four other street locations from Stockbridge Street downstream to the Kalamazoo River contained consistently high concentrations of PCB's ranging from 0.9 ppb to 1.3 ppb (Table 4).

Sediment collected from the east side of the lower Bryant Mill Pond contained very high levels of PCB's, 50.28 ppm, as did sites downstream at Alcott, Bryant, Reed and Stockbridge streets which ranged from 11.64 to 26.30 ppm (Table 4). A very small discharge was observed from one storm sewer that opened to Portage Creek from the West side of Lake Street. Sediments collected from the sewer contained high levels of PCB's (Table 4), but it is probable that the sediments were deposited in the sewer from previously high water levels in Portage Creek. Subsequent investigation indicated the sewer drains only a short section of a residential street.

The storm sewer outfalls investigated on July 25 were reexamined on August 31, but since the discharge conditions had not changed from the previous sampling, none of the sewers were resampled.

Water samples were collected again on August 31 from sites in Portage Creek and the Kalamazoo River in Kalamazoo. The results of the Portage Creek samples indicate that high PCB levels from 0.15 to 0.59 ppb were present from the Alcott Street Dam to the Kalmazoo River (Table 5). The PCB level in the Kalmazoo River at Michigan Avenue, upstream from the confluence with Portage Creek, was below the limit of detectability, but two downstream sites near Mosel Street had high levels, 0.28 and 0.45 ppb, indicating the influence of Portage Creek and possib

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the Kalamazoo WWTP on PCB contamination of the river (Figure 2 and Table 5).

Previous eight hour composite sampling of the Kalamazoo WWTP final effluent on March 28, June 6 and June 7, 1972 indicated high levels of Aroclor 1242 (1.70*, 1.92 and 1.00 ppb respectively) were being discharged to the Kalamazoo River via the WWTP outfall. (*Aroclor 1254 was also present in this sample. This would result in a slight overestimation of the Aroclor 1242 value).

Two outfalls to Portage Creek above the upper Bryant Mill Pond were also sampled on August 31. A 30-inch sewer entering the east side of the creek from the Norton Drive area had considerable discharge but no detectable PCB's. Slightly upstream and across the creek a 2-inch (polyvinylchloride pipe) discharge was sampled as an outfall of a diked Allied Paper Corporation settling basin. Although it was not a large discharge, the PCB concentration was extremel high, 56 ppb, indicating a possible significant source of PCB input to Portage Creek (Table 5).

Sediment core samples were taken from four locations in the Bryant Mill Ponds. High concentrations of PCB's, up to 368.7 ppm, appeared in specific layers in the profile of each core sample (Table 6). At three of the locations the PCB rich layer was at the top of the profile, but at the fourth location near the Alcott Street Dam, the rich layer was at the six to eight inch depth.

On November 20, 1972 the outfall from the Allied settling basin was resampled. The two inch plastic pipe had been replaced with an eight inch steel pipe, but the PCB concentration remained extremely high, 65.0 ppb as Aroclor 1242.

The Kalamazoo WWTP interceptor sewer system was sampled on December 6, 1972, to locate sources of PCB input. Eight hour composite samples from five of the main interceptor trunks plus the WWTP's raw intake and final effluent were collected. The results indicate that Aroclor 1254 was the predominant PCB form present (Table 7) unlike the previous results from the March and June effluent samples. Sampling is being continued on the interceptor trunk lines to further isolate sources.

DISCUSSION

A comparison of the results of the April 20, July 12, July 25 and August 31 sampling indicate a definite pattern to the PCB levels in Portage Creek. The PCB concentration in the water at Cork Street upstream from the Bryant Mill Pond on July 12 and August 31 (<0.1 and <0.1 ppb, respectively) and at the Alcott Street dam face on the same dates (0.16 and 0.15 ppb respectively) indicate that the PCB input from the Bryant Mill Pond sediments and the Allied Paper Corporation settling basin discharge is fairly constant (Tables 3 and 5) except when the contaminated sediments are washed from the ponds.

The bottom sediments in the upper and lower Bryant Mill Ponds appear to act as a significant reservoir of PCB's for the Portage Creek system. A layer of highly contaminated sediment probably exists throughout the ponds. The highest concentration found in a core sample is over six times higher than one of the highest concentrations reported in the literature, 61.0 ppm in Escambia River Florida (Nimmo, et al., 1971).

The sites downstream from Alcott Street appear to have the highest levels of PCB's in the water at the time of the drawing down of Bryant Mill Ponds, and then recede to pre-drawdown levels as the sediments in the stream were leached of PCB's. This is best exemplified by the water samples collected from the Michigan Avenue site which contained 0.47, 3.60, 1.30 and 0.59 ppb PCB's on April 20, July 12 (following drawdown), July 25 and on August 31, 1972, respectively.

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Since there was no known PCB input from storm sewers downstream from Alcott Street to Lake Street, it is probable that the increase in concentration with distance is a factor of the contaminated sediments releasing PCB's to the water.

Nisbet and Sarofim (1972) utilize the similarity between the properties of DDT and PCB's to formulate the conclusion that most PCB's released into fresh waters are adsorbed onto bottom sediments. A possible mechanism for the release of the adsorbed PCB's from sediments is indicated by Hamelink, et al. (1971). They state that the amount adsorbed (DDT and metabolites) is largely dependent on the organic matter content of the sediments. Therefore, a reductic in organic matter content of the sediments by increased decomposition in the stream would tend to release adsorbed hydrocarbons, such as PCB's to the water. The mechanism for PCB uptake by the water is probably equilibrium diffusion.

The impact of Portage Creek's PCB discharge on the Kalamazoo River is masked som what by the close proximity of the Kalamazoo WWTP discharge, an additional sourc of PCB input. However, the PCB concentrations discharged from Portage Creek are so high that the contribution to the Kalamazoo River must be considered significant.

Field work by; Jon Lauer, Aquatic Biologist
Roger Przybysz, Water Quality Investigatc
Dennis Swanson, Aquatic Biologist

Chemical Analysis by: James Bedford, Chemist

Report by: Jon Lauer, Aquatic Biologist
Water Quality Appraisal Section
Michigan Water Resources Commission
Bureau of Water Management
Department of Natural Resources

January, 1973

Dist.
Portage Creek, Kalamazoo River, Kalamazoo County
Toxic Materials: Polychlorinated Biphenyls

BIBLIOGRAPHY

Broadhurst, Martin G. 1972. Use and replaceability of polychlorinated biphenyl Envir. Health Perspectives 2:81-102.

Hamelink, J. L., R. C. Waybrant, and R. C. Ball. 1971 A proposal: exchange equilibria control the degree chlorinated hydrocarbons are biologically magnified in lentic environments. Trans. Amer. Fish. Soc. 100 (2):207-214.

Hesse, John and Ronald Willson, 1972. Biological survey of the Kalamazoo Rive June-August 1971. Michigan Water Resources Commission, 87 pg.

Nimmo, D. R., P. D. Wilson, R. R. Blackman and A. J. Wilson, June 1971. Polychlorinated biphenyls adsorbed from sediments by fiddler crabs and pink shr Nature 231:50-52.

Nisbet, I. C. T. and A. F. Sarofim. 1972. Rates and transport of PCB's in the environment. Envir. Health. Perspectives 1: 21-38.

SA 002705

Reynolds, L. M. 1969. Polychlorinated biphenyls and their interference with pesticide residue analysis. Bull. Envir. Contam. and Toxical. 4 (3): 128-143.

Risebrough, Robert W. and Brock de Lappe. 1972. Accumulations of polychlorinated biphenyls in ecosystems. Envir. Health Perspectives 1:39-46.

Stalling, David L. and Foster L. Mayer, Jr. 1972. Toxicities of PCB's to fish and environmental residues. Envir. Health Perspectives 1:159-164.

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FIGURE

SAMPLING SITE LOCATIONS ON PORTAGE CREEK IN KALAMAZOO

*Aroclor 1242 ppb

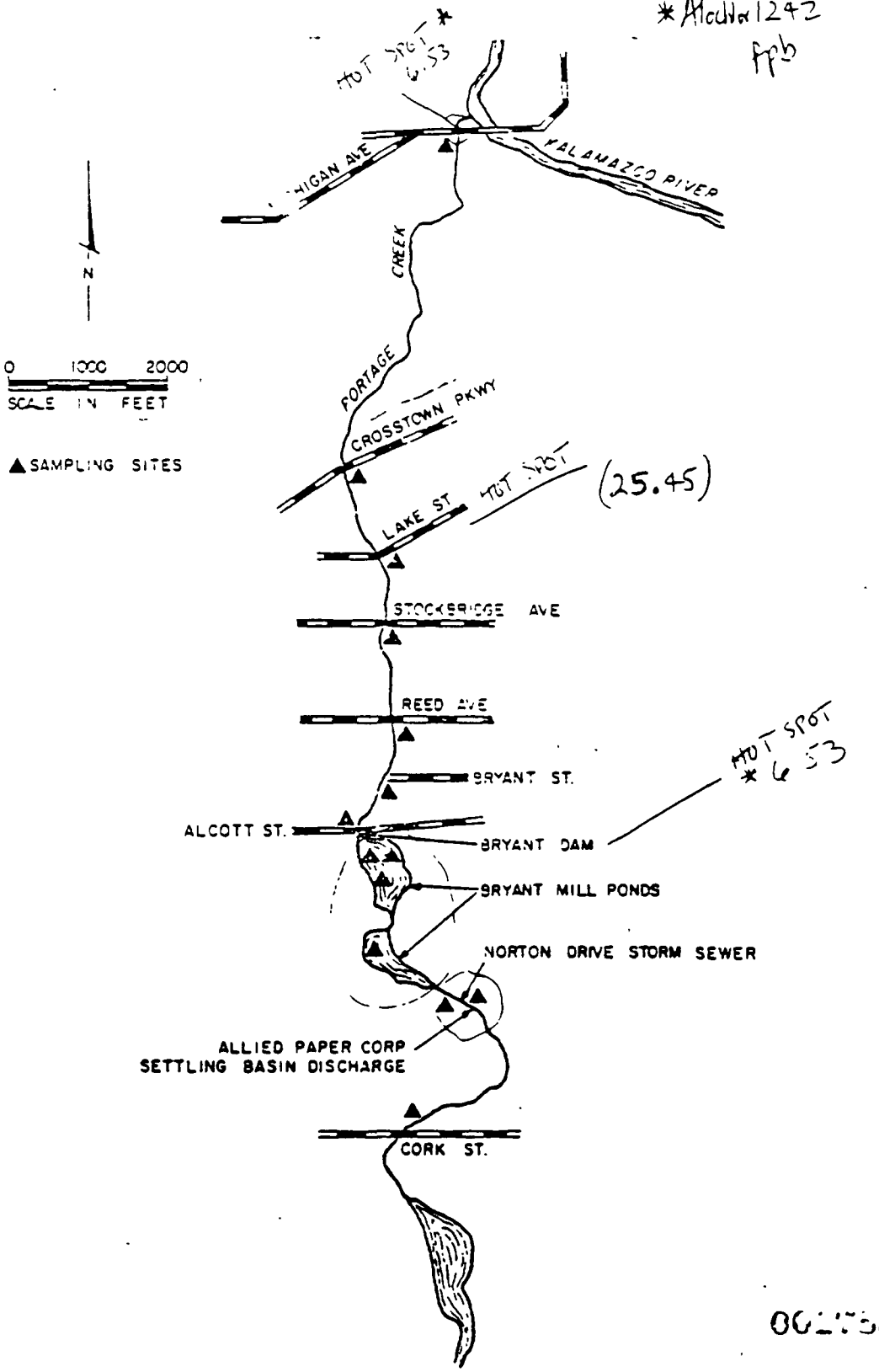

FIGURE 2

SETTLEABLE SOLIDS SAMPLING LOCATIONS
ON
PORTAGE CREEK
AND THE
KALAMAZOO RIVER
MAY 24, 1972

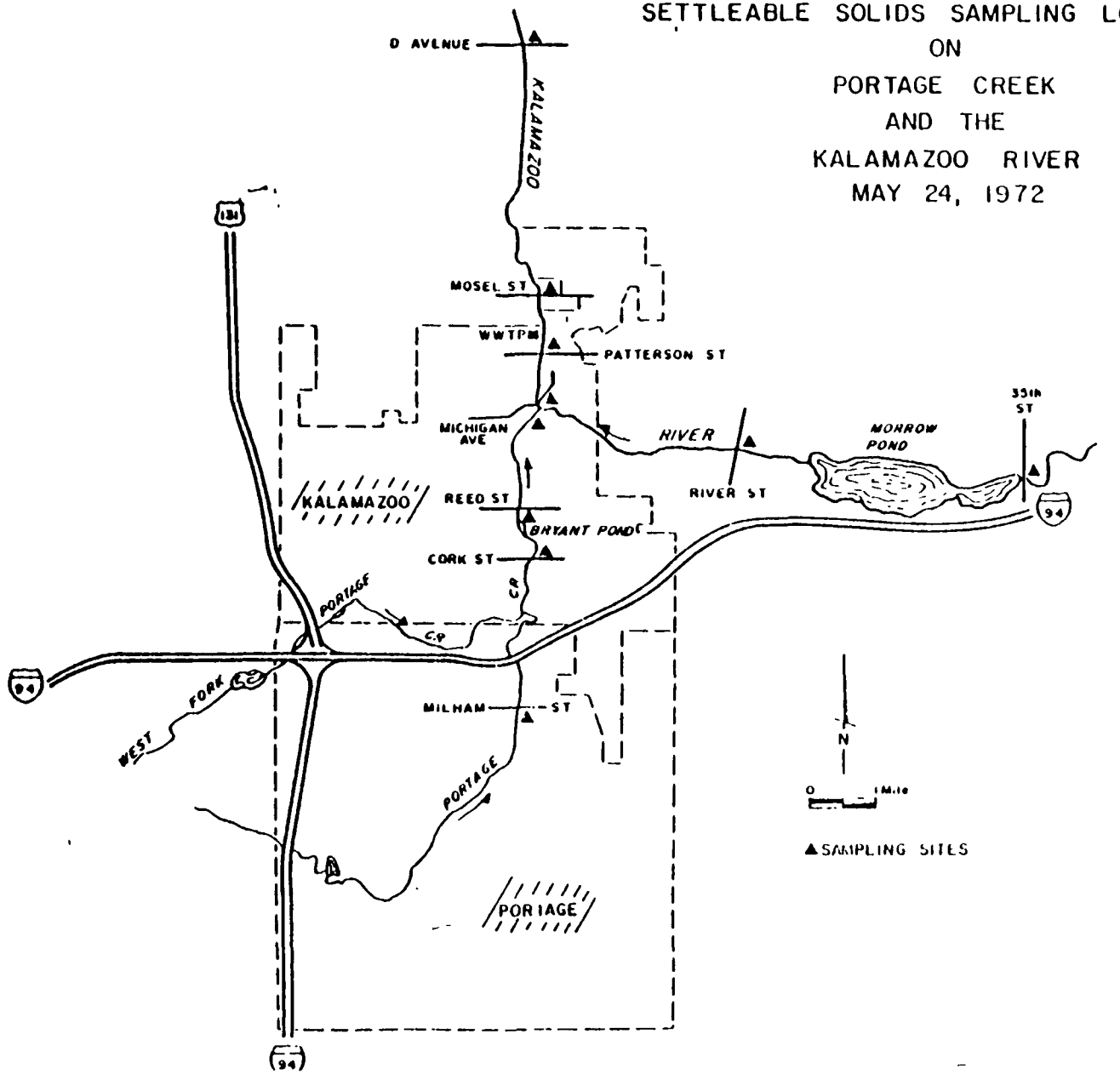

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Table 1. PCB concentrations in water grab samples collected in the City of Kalamazoo and vicinity of WRC District 3 personnel, April 20, 1972.

Location	PCB concentration in ppb, Aroclor 1242 Standard
Brown Paper Company	
White Water Discharge	
Parchment Mill #1	< 0.10
Parchment Mill #2	< 0.10
Storm Sewer Discharge	< 0.10
Checker Cab Company Discharge	< 0.10
Consumers Power Company Discharge, Kalamazoo	< 0.10
Edward Street Storm Sewer, Kalamazoo	< 0.10
Portage Creek at Michigan Avenue, Kalamazoo	0.47

Kalamazoo and vicinity by WRC Water Quality Appraisal personnel, May 17 - 24, 1972.

Location	Wet Weight Grams	PCB concentration in ppm Aroclor 1242	Aroclor Standard	1254
Kalamazoo River				
35th Street Galesburg	32.0	----		0.44
River Street Comstock	16.0	----		0.2[illegible]
Michigan Avenue Kalamazoo	11.4	----		0.56
Patterson Avenue Kalamazoo	16.9	1.09*		0.42
Mosel Street Parchment	23.5	0.89*		0.36
D Avenue Kalamazoo Twp.	6.0	1.08*		0.40
Portage Creek				
Milham Rd., Portage	10.9	----		0.0[illegible]
Cork Street, Kalamazoo	20.5	----		0.0[illegible]
Reed Street, Kalamazoo	28.0	1.33		---
Michigan Avenue, Kalamazoo	17.5	2.63		---

*The presence of both Aroclor 1242 and 1254 in these samples would result in a slight overestimation of the values.

Table 3. PCB concentrations in water and sediment grab samples collected from various locations in the City of Kalamazoo and vicinity by WRC District 3 personnel, July 12, 1972.

Location	PCB concentration Aroclor 1242 Stand (ppb)
The Upjohn Company Cooling Water Discharge to Portage Creek	< 0.10
Allied Paper Corporation Monarch Discharge to Portage Creek	< 0.10
Hydreco Discharge to Kalamazoo River	< 0.10
Consumers Power Company Morrow Plant Cooling Water Discharge to Kalamazoo River	< 0.10
Portage Creek	
Cork Street	< 0.10
Alcott Street (from face of Bryant Dam)	0.16
Michigan Avenue	3.60
Davis Creek	
Lake Street	< 0.10
Sediment from Portage Creek	**(ppm wet weight)**
Lower Bryant Mill Pond	**6.53**
Lake Street	**25.45**

Table 4. PCB concentrations in water and sediment grab samples collected from Portage Creek by WRC Water Quality Appraisal personnel, July 25, 1972.

Location	PCB concentration Aroclor 1242 Stand (ppb)
Portage Creek Water Samples	
Alcott Street	
West Sewer	< 0.10
East Sewer	< 0.10
Bryant Street	
*East Sewer	0.59
Reed Street	
*West Sewer	0.42
*East Sewer	1.20
Stockbridge Street	0.90
Lake Street	1.00
Crosstown Parkway	1.00
Michigan Avenue	1.30
Portage Creek Sediment Samples	(ppm wet weight)
Lower Bryant Mill Pond	50.28**
Alcott Street	26.30
Bryant Street	11.64
Reed Street	24.85
Stockbridge Street	18.78
*Lake Street (West Sewer)	12.05

*Portage Creek water and sediment probable source of PCB contamination. See text for details.

**Aroclor 1254 was also present in this sample. This would result in a slight overestimation of the Aroclor 1242 value.

Table 5. PCB concentrations in water samples collected from various locations in the City of Kalamazoo and vicinity by WRC Water Quality Appraisal personnel, August 31, 1972.

Location	PCB concentration Aroclor 1242 Standa (ppb)
Portage Creek	
Cork Street	< 0.10
Upper Bryant Mill Pond (upstream end)	< 0.10
Alcott Street (from face of Bryant Dam)	0.15
Bryant Street	0.42
Reed Street	0.48
Stockbridge Street	0.22
Michigan Avenue	0.59
Kalamazoo River	
Michigan Avenue	< 0.10
Mosel Street (Upstream 300 m.)	0.28
(Downstream 300 m.)	0.45
Discharges to Portage Creek	
30" storm sewer from Norton Drive Area	< 0.10
2" discharge from Allied Paper Corp. settling basin	56.0

*Aroclor 1254 was present in all the samples. This would result in a slight overestimation of the Aroclor 1242 value.

Aug 31 1972
Nov 20 1972

Table 6. PCB concentrations in sediment core samples collected from four locatio in the Bryant Mill Ponds on Portage Creek by WRC Water Quality Appraisa personnel, August 31, 1972.

Location	PCB Concentrations ppm Dry Weight-1242 Aroclor	Standard-Wet Weig
Bryant Mill Ponds		
West Side, Upper Pond-14" core		
0-2" depth interval	368.7	106.7
6-8" depth interval	10.0	3.4
12-18" depth interval	< 0.5	< 0.2
Northeast Side, Lower Pond-10" core		
0-2.5" depth interval	107.5	32.4
2.5-5.0" depth interval	79.6	25.8
5.0-7.5" depth interval	61.0	27.3
7.5-10.0" depth interval	65.6	25.7
Northwest Side, Lower Pond-14" Core		
0-3.5" depth interval	88.0	38.6
3.5-7.0" depth interval	5.1	2.7
7.0-10.5" depth interval	5.0	1.7
10.5-14.0" depth interval	6.6	2.5
Southwest Side, Lower Pond-14" Core		
0-2.5" depth interval	8.5	2.6
2.5-5.0" depth interval	28.3	9.5
5.0-8.0" depth interval	6.4	2.8
8.0-11.0" depth interval	75.6	22.1
11.0-14.0" depth interval	13.4	6.6

Table 7. [illegible] from the Kalamazoo WWTP interceptor sewer system and plant site by Kalamazoo Public works personnel, December 6, 1972.

Location	PCB Concentration ppb Arcolor 1254 Standard
Patterson Street Sewer (West) serving near N. W. city	0.34
Red Arrow Interceptor serving Galesburg, Portage, S. E. City	0.87
Spring Valley Interceptor serving N. E. City	0.34
North Limits Sewer serving N. City and Kalamazoo Twp.	0.21
Industrial Sewer serving Three Paper Companies	0.86*
Raw Intake, Kalamazoo WWTP	0.49*
Final Effluent, Kalamazoo WWTP	0.19*

*Hexane was lost from the samples, reducing the PCB concentration actually present.

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MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
All Outfalls No. 390222
Kalamazoo County
Kalamazoo, Michigan
July 18-19, 1977

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, July 18, 1977.

The results of this survey did not meet the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779. The BOD5 loading from outfall 390006 (002) was from 11 percent to 23 percent over limitations specified in the permit (Table 3).

Comparison of the results from the composite sample split between the company and the Environmental Protection Bureau (EPB) Laboratory show EPB concentrations higher for all parameters measured, except for settleable solids on outfall 002 (Table 4).

Comparison of the results of this survey with the survey performed on August 16-18, 1976 show that flow has decreased and TOC has increased slightly. (Table 5)

Underdrainage of the sludge disposal area, which is not covered in the permit, continues to discharge into Portage Creek (Table 1).

Survey Comments

Samples were collected from the Bryant clarifier discharge to the City of Kalamazoo sanitary sewer system (Table 1).

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., to Portage Creek and to check for compliance with the NPDES Permit No. MI0000779.

Plant Processes

Allied Paper, Inc. operates two mills in Kalamazoo. The Monarch Mill utilizes two fourdrinier paper machines to produce bible paper and carbon tissue for "one time" carbon paper. The Bryant Mill also produces bible paper and other specialty papers using five fourdrinier paper machines. All the machines were in operation during the survey (Figure 1).

Under normal production 275 tons of paper products can be produced a day. Pulp utilized at both mills has previously been treated in the Kraft process at other locations.

Both mills together employ approximately 475 people. The mills operate on a 5 or 6 day a week schedule depending on demand. The week previous to the survey the mills operated for 6 days. Production when the mills are operating is 24 hours a day.

Water, Wastewater & Treatment

Process water used at both the Monarch and Bryant Mills is obtained from Portage Creek. Water for the Monarch Mill is obtained upstream from the Monarch Dam and water for the Bryant Mill is obtained across from Cork Street. Water for both mills is passed through sand filters prior to its use.

Wastewater generated at both mills is treated as depicted in Figure 2. Wastewater received at the 110-foot circular Bryant clarifier originates from the excess white water and from the zeolite and lime soda ash softening process used for boiler feed water. Treatment provided at the Bryant clarifier consists of settling with the effluent going to either the City of Kalamazoo treatment system or the Monarch clarifier. The split of the flow depends on how much additional loading can be placed on the Monarch clarifier without exceeding its discharge limitations into Portage Creek.

Wastewater loadings on the 90-foot circular Monarch clarifier, in addition to the flows from the Bryant clarifier, are excess white water and zeolite waste from the boiler feed water system. Alum and a coagulation agent are added in the Monarch clarifier to increase settling characteristics. The effluent from the clarifier discharges to Portage Creek through outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property across Portage Creek from the Monarch clarifier. The sand filter backwash from the Bryant Mill is discharged directly to Portage Creek. This discharge is not covered in the NPDES Permit.

Potable water for both mills is obtained from the City of Kalamazoo. Domestic wastewater is discharged into the city's treatment system.

MCNR 88548

Underdrainage from the sludge disposal area was observed being discharged into Portage Creek upstream from the Bryant Mill intake. Flow during the survey was monitored and results of samples collected are included in Table 1.

Survey Procedures

The flows and composite samples were obtained as follows:

Outfall	Flow Measurement	Sampling
390006 (002)	49" full channel weir - company installed. Stevens flow recorder.	Automatic air activated.
Sludge Leachate	60° v-notch weir - staff installed. Stevens flow recorder.	Automatic scoop type.
Bryant Mill discharge to City	46-3/4" rectangular weir w/end contractions - company installed. Stevens Flow Recorder.	Automatic air activated.

The water level recorders at 002, sludge leachate and at the Bryant Mill discharge to the city sewer provided a continuous account of the liquid level or head above the crest of each weir on a head versus time graph for the duration of the survey period. The total volume of wastewater over each weir during the survey period was computed from the graph.

The samplers at the sludge leachate obtained samples proportional to the instantaneous flow over the weir at a timed interval.

Individual grab samples were collected from each of the three outfalls for selected physical and chemical analyses.

The following formula was used to compute the kilograms per day of various wastewater constituents discharged: kg/day = flow (M^3/d) x conc. (mg/l) x 0.001.

The composite and grab samples were analyzed by the Environmental Protection Bureau Laboratories located in Lansing.

All samples were preserved according to Table 6. The results of the physical and chemical analyses are presented in Tables 1 & 2.

Allied Paper, Inc.

Table 1 Analyses of composite samples.

Outfalls	390006 (002)		Sludge Leachate		Bryant Mill Clarifier to City Sewer	
Survey Period From	7-18-77 - 1150		7-18-77 - 1225		7-18-77 - 1240	
To	7-19-77 - 1150		7-19-77 - 1225		7-19-77 - 1240	
Computed flow rate* (M^3/day)	11,500		74		8,800	
Highest flow rate (M^3/day)	20,700 @ 2315		130 @ 2330		16,400 @ 2258	
Lowest flow rate (M^3/day)	7,300 @ 0608		44 @ 1612		450 @ 0344	
	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day
5-day BOD	19	220	< 5	--	100	880
COD	22	250	13	0.96	52	460
T.O.C.	12	140	--	--	--	--
Color (C.U.)	7	--	11	--	21	--
Turbidity (F.T.U.)	17	--	17	--	290	--
Suspended solids	7	80	32	2.4	69	610
Dissolved solids	470	5,400	420	31	580	5,100
Settleable solids	--	--	29	2.1	26	230
Phenols	< 0.00001	--	0.00003	0.000002	0.00004	0.0004
	ug/l		ug/l		ug/l	
PCB 1242	< 0.1	--	< 0.1	--	< 0.1	--
PCB 1254	< 0.1	--	< 0.1	--	< 0.1	--
PCB 1260	< 0.1	--	< 0.1	--	< 0.1	--

* Flow rates used in the computation of kg/day.
To obtain MGD multiply M^3/day by 0.000264
To obtain lbs/day multiply kg/day by 2.2046

MCNR 003941

Table 2 Analyses of grab samples

Date	Time	Temp.[1] °C	pH S.U.	Oil & Grease mg/l	BOD mg/l	Suspended solids mg/l	Settleable solids mg/l	D.O. mg/l
390006								
7-18-77	2145	32	6.6	3	13	15	--	5.4
7-19-77	0710	31	6.9	2.5	15	4	--	5.6
Sludge Leachate								
7-18-77	2200	17	7.3	--	< 5	12	--	--
7-19-77	0750	16	7.4	--	< 5	7	--	--
Bryant Discharge to City								
7-18-77	2230	33	6.7	--	120	78	25	--
7-19-77	0800	35.5	6.8	--	140	74	5	--

1 - Values determined in the field at time of sampling.

Table 3 Comparison of survey results with the facility's NPDES Permit and monthly operating report.

Parameter (Unit)	NPDES Permit Final Limitations		July Monthly Operating Report				Survey Results[1]
	Daily Average	Daily Maximum	Monthly Average	Monthly Maximum	7-18-77	7-19-77	min. max
390006 (002)							
Flow (M^3/day)	--	--	9,710	17,195	10,708	8,941	11,500* (10,400, 12,300
BOD_5 (kg/day)	--	177	138	334	64	79	220 (200, 230)
(mg/l)	--	--	--	--	--	--	19 (13, 15)
Total susp. sol. (kg/day)	--	230	127	380	21	170	80
(mg/l)	--	--	--	--	--	--	7 (15, 4)
Settleable solids (kg/day)	--	--	--	--	--	--	--
(mg/l)	--	--	0.04	0.05	0.05	0.05	--
Oil & Grease (mg/l)	--	--	--	--	--	--	(3, 2.5)
pH (S.U.)	not <6.5 nor >9.5		--	7.4 min. 6.5	6.9	6.8	(6.6, 6.9)

* Company reports flows for the same time span as 10,400 M^3/day.
1 - Survey results are for the composite sample. Grab sample ranges are shown in parantheses ( ).
To obtain MGD multiply M^3/day by 0.000264 To obtain lbs/day multiply kg/day by 2.2046

19 x Flow = kg/day

Table 4 Comparison of the laboratory analytical results obtained by the Allied Paper, Inc. and the Environmental Protection Bureau from the split composite samples.

Outfall	390006 (002)		Sludge		Bryant Mill Discharge to City	
	E.P.B. mg/l	Allied Paper mg/l	E.P.B. mg/l	Allied Paper mg/l	E.P.B. mg/l	Allied Paper mg/l
5-day BOD	19	7.6	< 5	--	100	62
Suspended solids	7	2.0	32	18.0	69	42
Settleable solids	--	0 *	29	0.05 *	26	0.05 *

* Values reported as ml/l.

Table 5 Comparison of the previous survey results with the results obtained in this survey at Allied Paper, Inc.

Outfall	390006		390006		390006	
Survey Date From	8-16-76 - 1300		8-17-76 - 1335		7-18-77 - 1150	
To	8-17-76 - 1330		8-18-76 - 1335		7-19-77 - 1150	
Flow Rate (M^3/day)	13,800		16,200		11,500	
	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day
5-day BOD	14	200	17	270	19	220
COD	20	270	21	340	22	250
T.O.C.	8.7	120	9.7	160	12	140
Suspended solids	6	90	2	32	7	80
Dissolved solids	468	6,450	448	7,260	470	5,400
Phenols	0.68	8.2	0.45	7.3	< 0.00001	--

Table 6 Sample Preservation

Parameter	Preservative
COD & TOC	10 drops H_2SO_4/250 ml (to pH <2).
D.O.	Fixed on site.
Oil & Grease	1 ml 1:1 H_2SO_4/250 ml (to pH <4).
Phenolics	2 ml 10% $CuSO_4$ + H_3PO_4 (to pH 4)/250 ml.

All samples cooled to 4°C upon collection.

Survey by: Gary Boersen, Sanitary Engineer
Larry Elmleaf, Water Quality Investigator
Richard Irvin, General Foreman

Contact with Management: U.G. Stoeffler

Hydrocarbon Analyses by: Tom Wilcox, Chemist

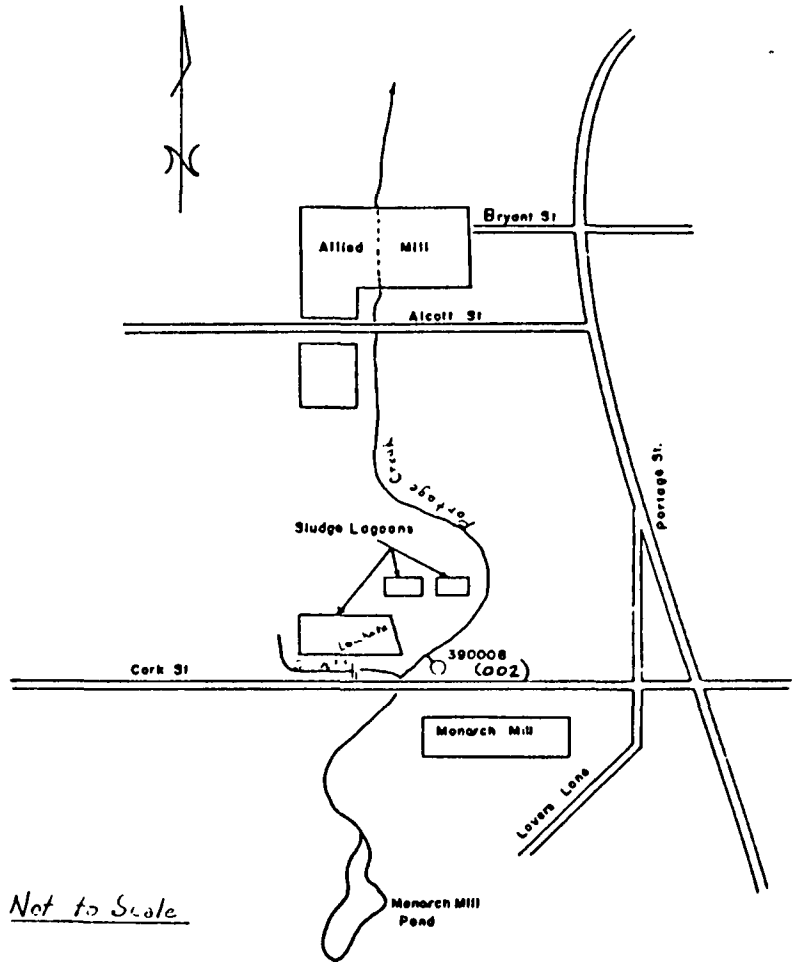
Physical & Chemical Analyses by: Ray Wimmer, Chemist

Report by: Gary Boersen
Larry Elmleaf
Point Source Studies Section
Environmental Services Division
Environmental Protection Bureau
Michigan Department of Natural Resources

Distribution "A"
MH

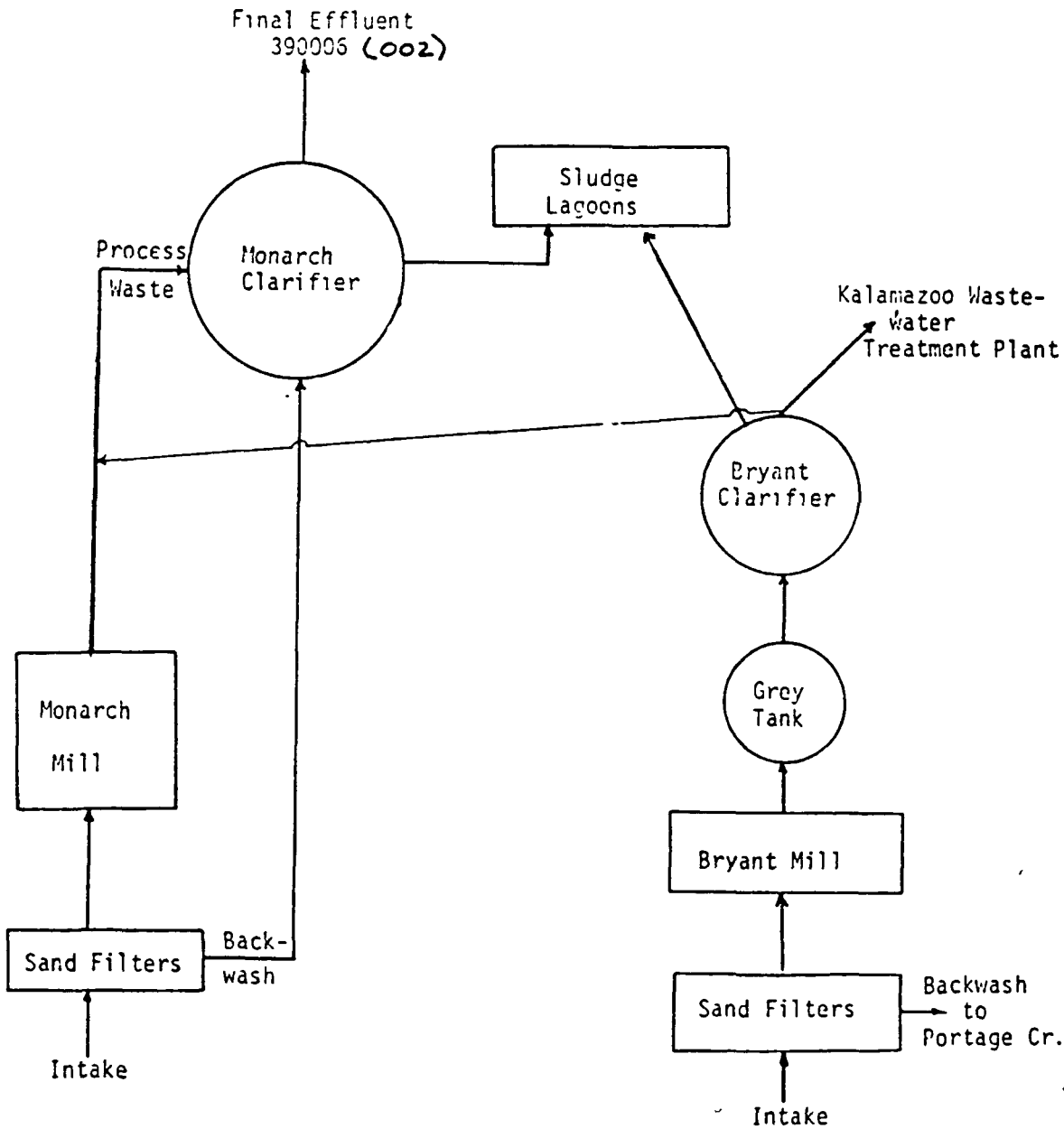
FIGURE. 1

ALLIED PAPER MILLS
KALAMAZOO



MDNR 003943

Figure 2 [illegible] Incorporated, [illegible] Kalamazoo [illegible]



MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER, INC.
MONARCH MILL
Kalamazoo County
Kalamazoo, Michigan
August 16-18, 1976

Survey Summary

Wastewater monitoring was performed during two twenty-four hour survey periods starting Monday, August 16, 1976.

The results of this survey met the initial limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000779 (Table 3).

Comparison of survey results with the company's August 1976 monthly operating report indicates the survey was representative of plant performance for the month of August (Table 3).

Composite samples from the two 24-hour surveys were split with the company for analysis in their laboratory. The company's BOD results compare well with the Environmental Protection Bureau laboratory results. Company's results for suspended solids and settleable solids were lower than EPB results (Table 4).

Comparison of the results of this survey with results of the May 1975 survey show a reduction in the concentration of most parameters while the flow increased by about 0.9 MGD (Table 5).

Leachate from the company's sludge lagoons is entering a ditch and flowing into Portage Creek. This leachate was sampled after it combined with the ditch flow (figure 1).

The leachate had a concentration of 1242 PCB of 0.4 ug/l.

Survey Comments

This company appears to be reporting settleable solids in grams per liter.

Purpose of Survey

The purpose of the survey was to determine the quality and quantity of wastewater being discharged by Allied Paper, Inc., Monarch Mill, to Portage Creek and to check for compliance with the NPDES Permit No. MI0000779.

This survey was conducted in conjunction with an intensive water quality study of the Kalamazoo River conducted by the Comprehensive Studies Section.

Plant Processes

Allied Paper, Inc. currently operates two mills in Kalamazoo, the Monarch Mill and the Bryant Mill (Figure 1). A third mill, the King Mill, is no longer in operation.

A total of 275 tons of paper products are produced at the mills under normal production. Both mills use virgin pulp in a standard papermaking operation.

The Monarch Mill utilizes two Fourdrinier paper machines to produce bible paper and carbon tissue for "one-time" carbon paper. Both machines were operating during the survey.

The Bryant Mill produces bible paper and other specialty papers using five Fourdrinier paper machines. One of the machines was out of service at the beginning of the survey.

The mills employ about 475 people. Both mills were shut down during the weekend prior to the survey, but production had resumed on the first day of the survey. Production is on a twenty-four hour a day basis, averaging six days per week.

Water, Wastewater and Treatment

Potable water for the mills is obtained from the City of Kalamazoo. Domestic wastewater is discharged to the Kalamazoo Wastewater Treatment System. Process water for the Monarch Mill is obtained from Portage Creek upstream of the Monarch dam and is treated using sand filters before being used in the mill. Process water for the Bryant Mill is obtained from Portage Creek near Cork Street and is also passed through sand filters prior to use.

A 90-foot circular clarifier at the Monarch Mill and a 110-foot circular clarifier at the Bryant Mill are used to treat process wastewater. All process wastewater from the Monarch Mill, consisting mainly of excess white water, paper machines, goes directly to the Monarch clarifier. Backwash water from the sand filters at the Monarch Mill is also discharged to the Monarch clarifier.

The Bryant clarifier receives a portion of the process waste from the Bryant Mill along with wastes from the zeolite and lime-soda ash softeners. The Bryant clarifier discharges to the Kalamazoo Wastewater Treatment System. The remainder of the flow from the Bryant Mill is then diverted to the Monarch clarifier for treatment.

Alum and a coagulation agent are added to the Monarch clarifier to increase settling and flocculation. The effluent from the clarifier discharges to

SR 03134

Portage Creek through outfall 390006. The sludge from the clarifier is disposed of on plant property across Portage Creek (Figure 2).

Sand filter backwash from the Bryant Mill's water system is discharged directly to Portage Creek. This discharge is not covered in the NPDES permit.

Leachate from this sludge disposal area was observed to be flowing into a ditch and eventually to Portage Creek, just upstream of the company's intake. The water was very dark at the beginning of the survey, however the company applied a large dosage of lime causing it to clear up. Results of samples collected from the sludge leachate are included in the tables.

Survey Procedure

The survey crew utilized a company constructed 48-inch full channel weir for flow measurement and proportional sample collection on outfall 390006 (002), the wastewater discharge from the company's clarifier. The survey crew constructed a 60-degree vee-notch weir on the sludge leachate.

Each weir was equipped with a water level recorder and an automatic sampler; scoop type on sludge leachate and air-activated on 390006 (002). The water level recorder provided a continuous account of the liquid level or head above the crest of each weir on a head versus time graph for the duration of each survey period. The total volume of wastewater over each weir during the survey period was computed from the graph. The automatic scoop type and air-activated samplers obtained samples proportional to the instantaneous flow over each weir at 5-minute intervals. These individual samples were deposited in a clean container to make up a composite sample representative of the total flow over each weir during the survey period.

A series of individual grab samples were collected from outfalls 390006 (002) and sludge leachate for selected physical, chemical and bacteriological analyses.

All samples collected were preserved according to Table 6.

The composite and grab samples were transported to the Environmental Protection Bureau laboratory located in Lansing for selected quantitative physical and chemical analyses. The following formula was used to compute the pounds per day of various wastewater constituents discharged:

lbs/day = flow (mgd) x conc (mg/l) x unit weight of water (8.34 lbs/gal).

The bacteria samples were transported to the Michigan Department of Public Health, Bureau of Laboratories located in Lansing for selected quantitative bacteriological analyses.

The results of the physical, chemical and bacteriological analyses are presented in Tables 1 and 2.

Table 1 Quantitative analyses of the two 24-hour composite samples collected from Allied Paper, Inc., Monarch Mill discharge, 390006 (002) and sludge leachate, to Portage Creek to determine the concentration of the wastewater constituents present in the samples, plus the computed pounds per day (lbs/day) of these constituents being discharged. Also noted are the highest and lowest flow rates recorded during the respective survey periods.

Outfall		390006 (002)			
Survey Period	From	8-16-76 - 1300		8-17-76 - 1335	
	To	8-17-76 - 1330		8-18-76 - 1335	
Computed flow rate (mgd) *		3.64		4.28	
Highest flow rate (mgd)		4.33 - 1510-8/16		4.87 - 1420-8/17	
Lowest flow rate (mgd)		2.9 - 1620-8/16		2.25 - 0950-8/18	
pH (S.U.)		7.3		6.9	
		mg/l	lbs/day	mg/l	lbs/day
5-day BOD		14	430	17	600
20-day BOD		20	600	21	750
COD		20	600	30	1,100
T O.C.		8.7	260	9.7	350
Suspended solids		6	200	2	70
Dissolved solids		468	14,200	448	16,000
Orthophosphate-P		< 0.01	--	0.01	0.4
Total phosphorus-P		0.02	0.6	0.06	2
Nitrite & nitrate nitrogen-N		0.49	15	0.66	24
Ammonia nitrogen-N		0.02	0.6	0.01	0.4
Organic nitrogen-N		0.25	8	0.72	26
Chlorides (Cl)		38	1,200	33	1,200
Sulfates (SO_4)		140	4,300	130	4,600
Phenols		0.60	18	0.45	16
Color (Pt. Co.)		3	--	2	--
Turbidity (F.T.U.)		16	--	8.0	--
		mg/l			
1242 PCB **		< 0.1			
1254 PCB **		< 0.1			
1260 PCB **		< 0.1			

* Flow rates used in the computation of lbs/day.
** PCB samples were composited over 48 hours.

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Table 1 (continued)

Outfall	Sludge Leachate			
Survey Period From	8-16-76 - 1410		8-17-76 - 1415	
To	8-17-76 - 1410		8-18-76 - 1415	
Computed flow rate (mgd) *	0.03 (1)		0.03 (1)	
pH (S.U.)	8.4		10.6	
	mg/l	lbs/day	mg/l	lbs/day
5-day BOD	11	2.8	9	2.3
20-day BOD	13	3.3	11	2.8
COD	32	8.0	29	7.3
Suspended solids	535	130	280	70
Dissolved solids	324	80	224	60
Settleable solids	491	120	--	--
Orthophosphate-P	0.02	0.01	< 0.01	--
Total phosphorus-P	0.21	0.05	0.05	0.01
Nitrite & nitrate nitrogen-N	0.04	0.01	0.06	0.02
Ammonia nitrogen-N	0.39	0.1	0.49	0.1
Organic nitrogen-N	0.35	0.09	0.41	0.1
Chlorides (Cl)	24	6	26	7
Sulfates (SO_4)	96	20	72	20
Phenols	0.15	0.04	0.08	0.02
Color (Pt. Co.)	--	--	7	--
Turbidity (F.T.U.)	--	--	92	--
	mg/l			
1242 PCB **	0.40			
1254 PCB **	< 0.1			
1260 PCB **	< 0.1			

* Flow rates used in the computation of lbs/day.
** PCB samples were composited over 48 hours.
(1) - Flow was constant over survey period.

Table 2 Quantitative analyses of grab samples collected from Allied Paper, Inc., Monarch Mill discharges, 380008 (and leachate, to Portage Creek to determine concentrations of select physical, chemical and bacteriological constituents present in the wastewater.

Date	Time	Flow1 mgd	Temp.2 °C	pH2 S.U.	Oil & Grease mg/l	BOD5 mg/l	Susp. solids mg/l	Settle. solids mg/l	Ortho-phosphate mg/l	Total phos. phorus mg/l	Nitrite & nitrate nitrogen mg/l	Ammonia nitrogen mg/l	Organic nitrogen mg/l
380008 (DOG)													
8-16-76	2115	3.72	25	6.9	1	16	21	13	< 0.01	0.03	0.53	0.06	0.25
8-17-76	0800	3.6	26.5	7.0	< 1	-	4	-	< 0.01	0.01	0.42	0.02	0.21
8-17-76	2130	4.6	27	7.3	2	-	6	-	< 0.01	0.01	0.69	0.04	0.67
8-18-76	1330	4.0	26	6.9	2	26	12	-	< 0.01	0.02	0.78	0.04	0.62
Sludge Leachate													
8-16-76	2000	0.03	15	7.4	-	18	-	-	0.21	0.29	0.01	0.07	0.03
8-17-76	0800	0.03	12.5	7.3	-	-	-	-	0.20	0.28	0.01	0.14	0.36
8-17-76	2115	0.03	15	11.8	-	-	-	-	< 0.01	0.06	0.07	0.50	0.32
8-18-76	1400	0.03	14.5	10	-	9	-	-	< 0.01	0.07	0.02	0.50	0.37
		Fecal Coliform cts/100 ml			Fecal Strep. cts/100 ml				Temperature °C				
380008 (DOG)													
8-16-76	2115	30			< 10				27.5				
8-17-76	0800	180			< 10				25				
8-17-76	2130	50			< 10				24.5				
8-18-76	0840	< 10			-				27				
8-18-76	1330	50			-				-				
		70			-				26				
Geometric Mean		30			-				-				
Sludge Leachate													
8-16-76	1410	430			800				12.5				
8-16-76	2015	210			700				15				
8-17-76	0800	250			570				12.5				
8-17-76	2115	< 10			-				15				
8-18-76	0845	< 10			-				-				
8-18-76	1400	10			-				14.5				
		30			700				-				
Geometric Mean													

1 - Flow at time of grab sampling.
2 - Values determined in the field at time of sampling.

SA 031351

Table 3 Comparison of results obtained during the survey at Allied Paper, Inc., Monarch Mill with the facility's NPDES Permit, No. MI0000779, and monthly operating report for August, 1976.

Parameter (Unit)	NPDES Permit Initial Limitations: Daily Average	NPDES Permit Initial Limitations: Daily Maximum	Monthly Operating Report: Monthly Average	Monthly Operating Report: Monthly Maximum	Monthly Operating Report: 8-16-76	Monthly Operating Report: 8-17-76	Monthly Operating Report: 8-18-76	Survey Results: 1st 24	Survey Results: 2nd 24	Survey Results: Wrapps High
390006 (002)										
Flow (MGD)	--	--	3.91	5.0	3.09	3.93	3.65	3.64	4.28	4.6
BOD_5 (lbs/day)	7205	2210	320	653	154	265	269	430	600	--
Susp. solids (lbs/day)	825	2300	196	964	258	197	304	200	70	--
Sett. solids (mg/l)	--	--	0.06	0.15	0.10	0.05	0.05	--	--	13
Oil & Grease (mg/l)	--	10	0.7	1.0	--	1.0	--	--	--	2
pH (S.U.)	not <6.5 nor >9.5		--	max 7.6 min 6.5	7.2	7.1	6.9	7.3	6.9	7.3

Table 4 Comparison of the laboratory analytical results obtained by Allied Paper, Inc., Monarch Mill and the Environmental Protection Bureau from the split composite samples.

Outfall	390006 (002) 1st 24-hour E.P.B.	390006 (002) 1st 24-hour Allied	390006 (002) 2nd 24-hour E.P.B.	390006 (002) 2nd 24-hour Allied	Sludge Leachate 1st 24-hour E.P.B.	Sludge Leachate 1st 24-hour Allied	Sludge Leachate 2nd 24-hour E.P.B.	Sludge Leachate 2nd 24-hour Allied
pH (S.U.)	7.3	6.9	6.9	6.7	8.4	9.2	10.6	10.4
	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
5-day BOD	14	10.6	17	13.6	11	15	9	19.5
Suspended solids	6	2.8	2	1.0	536	513	280	2.8
Settleable solids	--	trace	--	trace	481	2.0	--	1.5

Table 5 Comparison of the analytical results obtained on the previous survey of Allied Paper, Inc., Monarch Mill in May 1975 with the results obtained in this current survey.

Outfall	390006 (002)			
Survey Date From	5/5/75-1655	5/6/75-1600	8/16/76-1300	8/17/76-1335
To	5/6/75-1555	5/7/75-1560	8/17/76-1330	8/18/76-1335
Flow Rate (MGD)	2.78	3.35	3.64	4.28
pH (S.U.)	6.4	6.9	7.3	6.9
	mg/l	mg/l	mg/l	mg/l
5-day BOD	23	36	14	17
COD	57	86	20	30
TOC	22	41	8.7	9.2
Total solids	484	424	468	454
Suspended solids	24	8	6	2
Settleable solids	2	< 8	--	--
Sulfates (SO_4)	--	186	140	130
Color (S.U.)	4	8	3	2
Turbidity (F.T.U.)	80	54	16	8.0

Table 6 Sample Preservation

Parameter	Preservative
BOD	Cooled to 4°C.
COD	5 drops H_2SO_4/125 ml (to pH <2). Cooled to 4°C.
D.O.	Fixed on site.
General Chemistry	Cooled to 4°C.
Microbiology	2 drops 10% sodium thiosulfate/125 ml to dechlorinate sample. Cooled to 4°C.
Nutrients	Cooled to 4°C.
Oil & Grease	1 ml 1:1 H_2SO_4/250 ml (to pH <4). Cooled to 4°C.
Phthalate, PCB	Collected in glass bottle.

SA 031352

Survey by: Dennis Bittner, Sanitary Engineer
William Long, Water Quality Investigator
Richard Irvin, General Foreman

Contact with Management: U. G. Stoeffler

Hydrocarbon Analyses by: Tom Wilcox, Chemist

Physical & Chemical Analyses by: Ray Wismer, Chemist

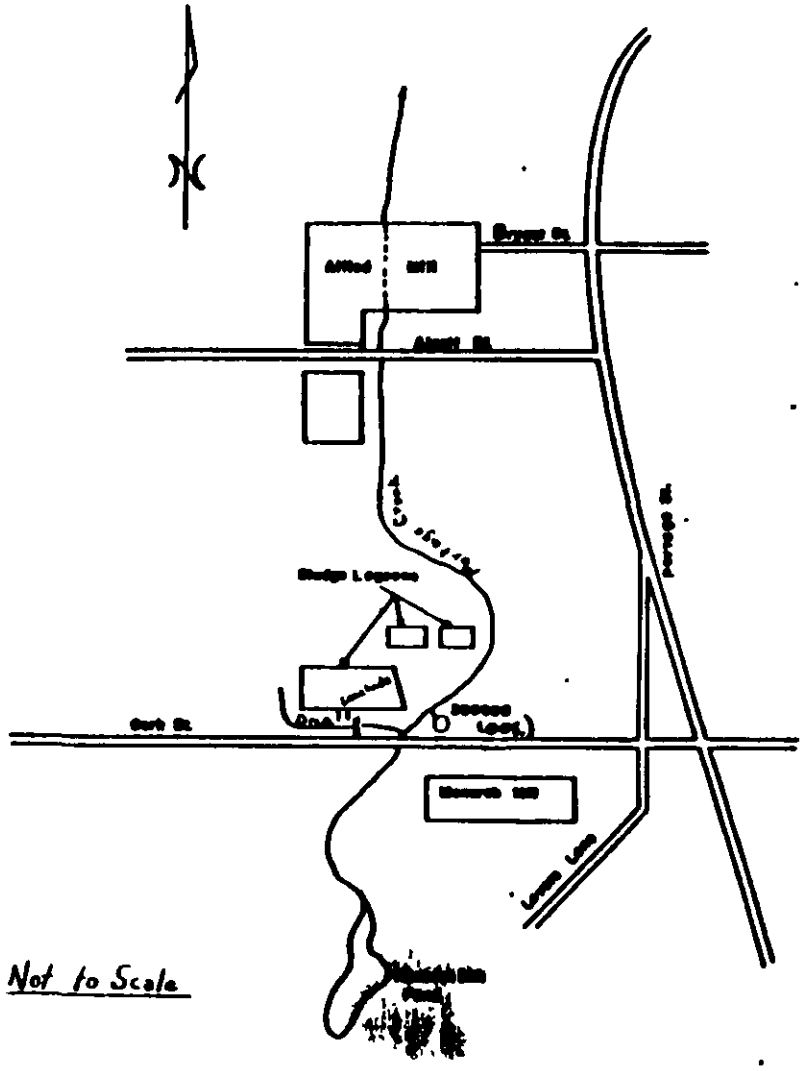
Bacteriological Analyses by: Michigan Department of Public Health
Bureau of Laboratories

Report by: Dennis Bittner
William Long
Point Source Studies Section
Environmental Services Division
Environmental Protection Bureau
Michigan Department of Natural Resources

Distribution "A"
PPI

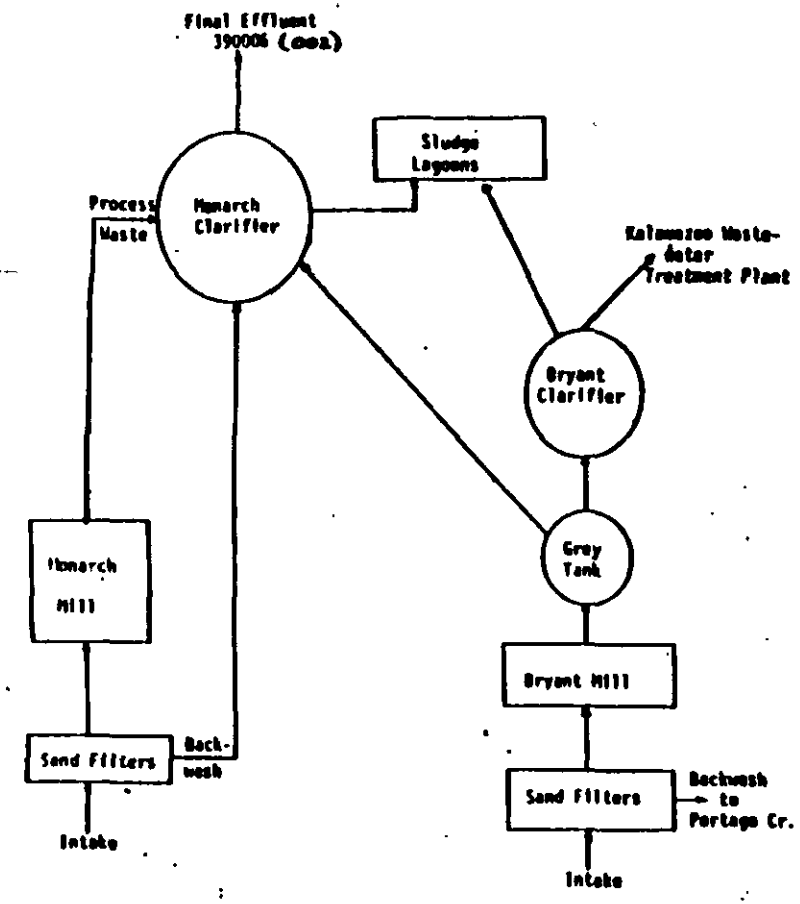
FIGURE. I

ALLIED PAPER MILLS
KALAMAZOO



031353
SA

Figure 2 Allied Paper Incorporated, Kalamazoo Mills



031354
SA

Company: Allied Paper - Monarch Mill

Location: Kalam Azoo

Survey Date: Aug 16-17-18, 1976

Attention: E. J. Gilman

Please analyze the split sample(s) for at least the NPDES permit parameters listed below. Please enter the analytical results on this sheet and forward it to the address given below. The results obtained by your laboratory will then be compared to the W.R.C. Laboratory results and incorporated into the survey report of your plant. 2nd 24

Outfall	390006	Seepage
Parameter (Unit)	002	003
Susp. Solids mg/l	1.0	2.8
Settl. Solids mg/l	Trace	1.5
BOD5 mg/l	13.6	19.5
pH S.U.	6.7	10.4

Return this form within two weeks to:

Department of Natural Resources
Water Resources Commission
3005 Alpha Street
Lansing, MI 48910

Attn: D. B. Fuller

000022

SA 031355

Company: ALLIED PAPER - MONARCH MILL

Location: KALAMAZOO

Survey Date: AUG 16-17-18, 1976

Attention: E. J. GILMAN

Please analyze the split sample(s) for at least the NPDES permit parameters listed below. Please enter the analytical results on this sheet and forward it to the address given below. The results obtained by your laboratory will then be compared to the W.R.C. Laboratory results and incorporated into the survey report of your plant.

1st 24 Hour Survey Period

Outfall	390006	LEACHADE
Parameter (Unit)	(002)	(003)
Susp. Solids mg/l	[illegible].8	513.0 *
Sett. Solids mg/l	TRACE	2.0
BOD_5 mg/l	10.6	15.0
pH S.U.	6.9	9.2

* We added lime to this about an hour before and this probably accounts for high sus solids.

Return this form within two weeks to:

Department of Natural Resources
Water Resources Commission
3005 Alpha Street
Lansing, MI 48910

Attn: D. BITTNER

93-483

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO MICHIGAN 49003 (616) 345 7131

August 20, 1979

Mr. Dennis Curran
Southcentral Michigan Planning Council
Connors Hall, Nazareth College
Nazareth, Michigan 49074

Dear Dennis:

As I mentioned in my telephone call to you last week, I would like to clarify and set the record straight on the statement in the last issue (Summer 1979) of Clear Stream under item #8 stating, "reduced discharge of phenol from Allied Paper Company" - Exhibit A. This statement was taken from excerpts of Kalamazoo River Study, Comstock to Plainwell, August 16-18, 1976, shown in Exhibit D, page 34 of the River Study report. You can see from Exhibit E, page 11, from the Study report that Allied's discharge contained an average of 7.7 Kg/day of phenol and should be reduced to 7.4 Kg/day but Exhibit D, page 34, states "phenols discharged from Allied Paper Company should not exceed 8.0 Kg/day. During the survey, Allied Paper Company discharged phenols at the rate of 8.3 Kg/day." These errors can be clarified by Exhibit B, page 60 of the report, which give the phenol for the two day survey as 9.4 Kg/day and 7.3 Kg/day which averages to the 8.3 Kg/day. Exhibit C is a copy of a report of the survey to Allied Paper, dated November 29, 1976.

However, all these numbers are academic since Allied Paper contended in answer to this study report that the wrong test for phenols was used and the phenol reported was not that as prescribed in E.P.A.'s "Guideline Establishing Test Procedures for Analysis of Pollutants" listed in Federal Register, October 16, 1973, for Phenol, Colorimetric, 4AAP. Our reply to Mr. Chester Harvey concerning this incorrect phenol analysis is shown in Exhibit J.

The best proof that Allied's discharge did not contain the phenol level as shown in the 1976 River Study report can be seen in Exhibits F, C and H, copies of the 1977, 1978 and 1979 Michigan DNR survey reports of Allied discharge. Our manufacturing process and raw materials used were not changed from 1976 to 1979 and the phenol levels for 1977, 1978 and 1979 were $<$10 parts per trillion, $<$10 parts per billion and $<$10 parts per billion, respectively.

Soon after the 1976 River Study report was released, November 1976, Allied sent a current sample of its effluent to a private laboratory for phenol analysis. Results were 60 parts per billion.

In light of this data I trust you will see fit to correct the statement in the "Clear Stream". Allied does not discharge phenol. The phenol level in Allied's discharge is much lower at < 10 parts per billion than the "recommended level 100 MGD parts per billion as shown on page 34 of the River Study report.

Thank you for your consideration on this subject.

Very truly yours,

W. G. Steeffler
Manager, Process Development

br

cc: T.Flanagan
D.C.Kirk
M.L.Smith
J.Roth
File

Exhibit A

D. Chloride levels in stormwater increase and decrease in relation to usage and do not appear to accumulate.

E. The total monthly discharge of BOD_5 from stormwater may be significant in comparison to a secondary or advanced waste treatment effluent.

F. Suspended solids loadings from stormwater exceed a secondary treatment effluent on a monthly total basis.

G. Phosphorus and ammonia-nitrogen levels in stormwater are insignificant in relation to the present and proposed treatment plant discharge.

H. To achieve a net reduction in suspended solids to the river it may be more cost effective to increase street sweeping activities than wastewater treatment levels.

I. The maximum cost/benefit for reduction of BOD_5 from stormwater by increased street sweeping is in the residential land areas.

J. The maximum cost/benefit for reduction of suspended solids from stormwater by increased street sweeping is in the industrial land areas.

K. Lower BOD_5 and suspended solids concentrations in stormwater from commercial land can be achieved by more frequent street sweeping.

L. The present discharge limitations for nutrients assigned to the City of Kalamazoo require the implementation of Advanced Wastewater Treatment.

7. Progress report: resolutions of support for the Areawide Waste Treatment Management Plan from designated management agencies - EPA requires that SMPC obtain a resolution supporting the Plan and agreeing to implementation from each agency designated in the Plan as being responsible for control of an aspect of water pollution. Thirteen resolutions were requested in letters dated August 21, 1978. Ten of the agencies contacted at that time have adopted resolutions. Thirty-nine additional agencies were contacted on June 29, 1979. Four of these have responded so far, three with resolutions and the fourth with a letter from the chief elected official expressing his opposition to certain aspects of the Plan and the process used in developing it. The following governmental units have adopted resolutions:

Counties:	Barry, Branch, Kalamazoo and Calhoun
Cities:	Battle Creek, Kalamazoo, Parchment, Sturgis, Three Rivers, Coldwater
Villages:	Middleville, Quincy
Township:	Emmett

8. Excerpts from Kalamazoo River Study, Comstock to Plainwell, August 16-18, 1976, State of Michigan Department of Natural Resources, Environmental Services Division, Comprehensive Studies Section - The recommendations of this study included elimination of PCB discharges; restriction of discharge of oxygen demanding substances; control of nutrient input; reduced discharge of nutrients, phenols and heavy metals from the Kalamazoo treatment plant; reduced discharge of phenol from Allied Paper Company; and a bioassay on the Kalamazoo River to determine whether a toxicity problem exists downstream of Kalamazoo.

9. Excerpts from The County Plan, St. Joseph County, 1977 - After the land use information had been compiled for the SMPC water quality Plan, St. Joseph County adopted a County Plan. When the land use portion of the SMPC Plan is updated, this information will be incorporated. The St. Joseph County Plan includes a map of the following land use categories: County park, State game area, private recreation, general location of solid waste site, industrial area, business development, full utility service area, partial utility service area, lake resort service area, and rural homes or agriculture.

EXHIBIT B

TABLE 4

KALAMAZOO RIVER STUDY

Allied Paper Company, Monarch Division
Laboratory Analyses and Computed River Loadings

COMPOSITE SAMPLES
Outfall #002 - Treated Process

Survey Period	FROM: 8-16-76, 1300 TO: 8-17-76, 1300	8-17-76, 1335 8-18-76, 1335
Flow rate (m^3/day)	13800	16200
pH (SU)	7.3	6.9
Color (Pt Co)	3	2
Turbidity (F.T.U.)	16	8.0

PARAMETER	mg/l	kg/day	mg/l	kg/day
5-day BOD[1]	14	190	17	280
20-day BOD[2]	20	280	21	340
COD	20	280	30	490
TOC	8.7	120	9.7	160
Suspended solids	6	80	2	30
Dissolved solids	468	6460	448	7260
Orthophosphate-P	<0.01	--	0.01	0.2
Total phosphorus-P	0.02	0.3	0.06	1
Nitrite + nitrate nitrogen-N	0.49	6.8	0.66	11
Ammonia nitrogen-N	0.02	0.3	0.01	0.2
Organic nitrogen-N	0.25	3.4	0.72	12
Chlorides (Cl)	38	520	33	530
Sulfates (SO_4)	140	1900	130	2100
Phenols	0.68	9.4	0.45	7.3

	ug/l
1242 PCB	<0.1
1254 PCB	<0.1
1260 PCB	<0.1

NOTE. PCB samples were composited over 48 hours.

Loading (kg/day) = Concentration (mg/l) x Flow (m^3/day) x .001.
[1] BOD5 values include nitrification.
[2] BOD_{20} values are carbonaceous only, nitrification was inhibited.

Exhibit C

Table 1 Quantitative analyses of the two 24-hour composite samples collected from Allied Paper, Inc., Monarch Mill discharge, 390006 (002) and sludge leachate, to Portage Creek to determine the concentration of the wastewater constituents present in the samples, plus the computed pounds per day (lbs/day) of these constituents being discharged. Also noted are the highest and lowest flow rates recorded during the respective survey periods.

Outfall		390006 (002)			
Survey Period	From	8-16-76 - 1300		8-17-76 - 1335	
	To	8-17-76 - 1330		8-18-76 - 1335	
Computed flow rate (mgd) *		3.64		4.28	
Highest flow rate (mgd)		4.33 - 1510-8/16		4.67 - 1420-8/17	
Lowest flow rate (mgd)		2.9 - 1620-8/16		2.25 - 0950-8/18	
pH (S.U.)		7.3		6.9	
		mg/l	lbs/day	mg/l	lbs/day
5-day BOD		14	430	17	600
20-day BOD		20	600	21	750
COD		20	600	30	1,100
T.O.C.		8.7	260	9.7	350
Suspended solids		6	200	2	70
Dissolved solids		468	14,200	448	16,000
Orthophosphate-P		< 0.01	--	0.01	0.4
Total phosphorus-P		0.02	0.6	0.06	2
Nitrite & nitrate nitrogen-N		0.49	15	0.66	24
Ammonia nitrogen-N		0.02	0.6	0.01	0.4
Organic nitrogen-N		0.25	8	0.72	26
Chlorides (Cl)		38	1,200	33	1,200
Sulfates (SO_4)		140	4,300	130	4,600
Phenols		0.68	18	0.45	16
Color (Pt. Co.)		3	--	2	--
Turbidity (F.T.U.)		16	--	8.0	--
		ug/l			
1242 PCB **		< 0.1			
1254 PCB **		< 0.1			
1260 PCB **		< 0.1			

* Flow rates used in the computation of lbs/day.
** PCB samples were composited over 48 hours.

Exhibit I

5. Fecal Coliform

The fecal coliform standard was exceeded at all sampling locations downstream of the Allied Paper Company, Monarch Mill discharge. Excessive bacteria levels were not discharged by Allied Paper, however. Therefore either an unknown source existed or Klebsiella bacteria discharged by Allied Paper were reproducing in Portage Creek.

6. Toxic Substances

Toxic substance concentrations discussed below are compared to the recommended limiting (safe) concentrations given in "A Report of the Committee on Water Quality Criteria, 1972" for freshwater aquatic life and wildlife. Drought flow comments were made by reviewing stream concentrations and point source loading rates observed during this survey.

a. Total Chromium (Recommended Level: <50 ug/l)

The recommended level for total chromium was not exceeded during the survey. Total chromium levels ranged from 5 to 14 ug/l.

b. Total Cadmium (Recommended Level: <30 ug/l)

The recommended level for total cadmium was not exceeded during the survey. The maximum concentration of 0.9 ug/l was observed at the Bryant Dam.

c. Total Lead (Recommended Level: <30 ug/l)

The recommended level for total lead was not exceeded during the survey. The maximum concentration of 5 ug/l was observed at Pitcher Street.

d. Total Mercury (Recommended Level: <0.02 ug/l)

The recommended level for total mercury was exceeded at Cork Street (0.3 ug/l), Bryant Dam (0.9 ug/l), Vine Street (0.5 ug/l), and Michigan Avenue (0.7 ug/l). The source of the mercury is not known, but should be discovered and eliminated.

e. Phenols (Recommended Level: <100 ug/l)

The recommended level for phenols was not exceeded during the survey. However, to protect Portage Creek at drought flow, phenols discharged from Allied Paper Company should not exceed 8.0 kg/day. During the survey Allied Paper Company discharged phenols at a rate of 8.3 kg/day.

f. Unionized Ammonia (Recommended Level: <0.02 mg/l, as ammonia)

The recommended level for unionized ammonia was not exceeded during the study. The maximum concentration (0.012 mg/l, as ammonia) occurred at Michigan Avenue. Because unionized ammonia concentrations are so dependent on pH, drought flow concentration predictions can not be made.

EXHIBIT E

WASTEWATER DISCHARGERS

To determine waste loadings to the study reach in conjunction with the river sampling period, wastewater surveys were conducted at the six major dischargers. The locations of the dischargers are shown in Figure 1. Table 3 summarizes the location of the dischargers and the type of wastewater discharged. More involved discussions of the dischargers follow (in alphabetical order).

Allied Paper, Incorporated

The Monarch Mill and the Bryant Mill are the two paper mills operated in Kalamazoo by Allied Paper. Both use conventional paper-making processes and employ a total of about 475 people. Production is on a round-the-clock, six day per week basis. Although both mills were shut down for the weekend preceding the survey, production resumed prior to the survey. The production rate was below normal, however.

Various wastewaters are discharged by Allied Paper to Portage Creek. All Monarch Mill process wastes, part of the Bryant Mill process wastes, and Monarch intake filter backwash receive treatment in the Monarch Mill clarifier. This clarifier discharges to Portage Creek just downstream of Cork Street (outfall 002). Sludge from this clarifier is disposed of on plant property across Portage Creek. Leachate and ground water from this area was discharging to Portage Creek via a ditch (referred to as sludge leachate). The intake filter backwash from the Bryant Mill was also discharged to Portage Creek without treatment.

Two consecutive twenty-four hour wastewater surveys were conducted in conjunction with the river sampling. The clarifier effluent and leachate from the sludge disposal area were composite sampled over each twenty-four hour survey. Each discharge was grab sampled during each survey period also. Samples were analyzed for various physical, chemical, and bacteriological parameters. See Table 4 for sampling results.

An NPDES permit issued to Allied Paper established interim discharge limitations for the period December 20, 1974 to June 30, 1977. On July 1, 1977, final limitations became effective. Permit details are listed in Table 5.

Interim permit limitations were met during these wastewater surveys. However, the existing permit did not cover some problem areas discovered during the surveys. The sludge leachate and the Bryant Mill intake filter backwash discharges were not included in the permit at the time of the survey. The leachate contains PCB's. The toxicity of PCB's is well documented. The Monarch Mill's process discharge (outfall 002) contained phenols loads (average of 7.7 kg/day) sufficient to elevate drought flow concentrations in Portage Creek above the recommended level for the protection of aquatic life.

It is recommended that the sludge leachate and the Bryant Mill filter backwash discharges either be eliminated or included in the current NPDES permit. Phenols loads from this facility should be reduced to less than 7.4 kg/day for the protection of aquatic life.

SA 030160

Exhibit F

Allied Paper, Inc.

Table 1 Analyses of composite samples.

Outfalls	390006 (002)		Sludge Leachate		Bryant Mill Clarifier to City Sewer	
Survey Period From	7-18-77 - 1150		7-18-77 - 1225		7-18-77 - 1240	
To	7-19-77 - 1150		7-19-77 - 1225		7-19-77 - 1240	
Computed flow rate* (M^3/day)	11,500		74		8,800	
Highest flow rate (M^3/day)	20,700 @ 2315		130 @ 2330		16,400 @ 2258	
Lowest flow rate (M^3/day)	7,300 @ 0608		44 @ 1612		450 @ 0344	
	mg/l	kg/day	mg/l	kg/day	mg/l	kg/day
5-day BOD	19	220	< 5	--	100	880
COD	22	250	13	0.96	52	460
T.O.C.	12	140	--	--	--	--
Color (C.U.)	7	--	11	--	21	--
Turbidity (F.T.U.)	17	--	17	--	290	--
Suspended solids	7	80	32	2.4	69	610
Dissolved solids	470	5,400	420	31	580	5,100
Settleable solids	--	--	29	2.1	26	230
Phenols	< 0.00001	--	0.00003	0.000002	0.00004	0.0004
	ug/l		ug/l		ug/l	
PCB 1242	< 0.1	--	< 0.1	--	< 0.1	--
PCB 1254	< 0.1	--	< 0.1	--	< 0.1	--
PCB 1260	< 0.1	--	< 0.1	--	< 0.1	--

* Flow rates used in the computation of kg/day.
To obtain MGD multiply M^3/day by 0.000264
To obtain lbs/day multiply kg/day by 2.2046

SH 030161

Exhibit E

for the duration of the survey period. The total volume of wastewater over the weir during the survey period was computed from the graph.

The samplers at 390006 (002) obtained samples proportional to the instantaneous flow over the weir at a timed interval.

Individual grab samples were collected from 390006 (002) for selected physical and chemical analyses.

The following formula was used to compute the kilograms per day of various wastewater constituents discharged: kg/day = flow (M^3/d) x conc. (mg/l) x 0.001.

Samples were analyzed by the Environmental Protection Bureau Laboratories located in Lansing.

Samples were preserved according to Table 6. The results of the physical and chemical analyses are presented in Tables 1 and 2.

Allied Paper, Inc. - Kalamazoo

Table 1 Analyses of composite samples.

Outfall		390006 (002)
Survey Period	From	2-27-78 - 1440
	To	2-28-78 - 1440
Computed flow rate* (M^3/day)		15,000
Highest flow rate (M^3/day)		20,000 - 2-28-78 @ 1329
Lowest flow rate (M^3/day)		8,000 - 2-28-78 @ 0846

	mg/l	kg/day
5-day BOD	42	630
COD	54	810
TOC	21	320
Suspended solids	7	100
Dissolved solids	490	7,400
Settleable solids	< 7	--
Phenols	< 0.01	--

* Flow rates used in the computation of kg/day.
To obtain MGD multiply M^3/day by 0.000264
To obtain lbs/day multiply kg/day by 2.2046

Exhibit H

An automatic sampler composites samples at timed intervals. Samples may be proportional to the instantaneous flow over the weir or through the flume.

A grab composite consists of a series of individual grabs composited into one sample.

An individual grab is a single instantaneous sample.

Samples were analyzed by the Environmental Protection Bureau Laboratories located in Lansing.

Samples were preserved according to Table 6. The results of the physical and chemical analyses are presented in Tables 1 & 2.

Allied Paper Company - Kalamazoo

Table 1 Analyses of composite samples.

Outfall		390006 (002) Process
Survey Period	From	3-27-79 - 1200
	To	3-28-79 - 1200
Computed flow rate* (M^3/day)		7,660
Highest flow rate (M^3/day)		13,400
Lowest flow rate (M^3/day)		3,630

	mg/l	kg/day
5-day BOD	34	260
COD	65	500
TOC	21	160
Suspended solids	7	50
Dissolved solids	460	3,520
Settleable solids	< 7	< 50
Phenols	< 0.01	--
Total chromium (Cr)	< 0.01	--
Total zinc (Zn)	0.01	0.08

* Flow rates used in the computation of kg/day.
To obtain MGD multiply M^3/day by 0.0002642
To obtain lbs/day multiply kg/day by 2.205

Exhibit E

"This company appears to be reporting settleable solids in grams per liter." We report settleable solids in milliliters per liter (ml/l), getting the reading directly from the Imhoff cone calibrations. At one time, we reported mg/l but were advised by D.N.R. to report ml/l as prescribed in the Monthly Operating Report.

The sand filter backwash discharge is still under study for discharge into Bryant clarifier. Presently, our Engineering Department is completing the revised piping of waste flows as outlined in our new system. The completion of the study for the sand filter backwash discharge must wait for new flow patterns.

The phenol concentrations in our discharge surprised us and we researched the problem. We will quote from the Technical Bulletin No. 250, October 1971, of The National Council of the Paper Industry for Air and StreamsImprovement: "It has been known for some time that pulp and paper mill effluents do on occasion respond positively to various tests for phenolic materials." These phenolic materials come from wood or wood extracts, such as wood rosin, or from the general classification of additives, such as slimicides. First of all, we assembled a list of these additives we use, such as defoamers, boilout chemicals, surfactants, etc. We then requested and have received letters from each of the suppliers of these additives as to the content or absolute assurance that they contained no phenol. The additives came out clean and the daily usage rates could not have contributed the daily amount of phenol you reported. We then turned to rosin which we use regularly in most of our grade furnishes. Our rosin supplier has responded with the following quote from Dr. Ray Lawrence, Consultant, formerly Director of The Clustee, Fla. USDA Naval Stores Experimental Section of USDA: "If your test for phenols is positive in the presence of the methoxy phenols, I would expect anethole and methyl chavicol (estragole) to be among the major phenolics present in the water. They are slightly soluble in water, They are commonly used as flavoring agents." He further states that Hercules (producer of rosin) "had done some very extensive toxicity studies on rosins and all of the rosins were said to be non-toxic." I am sure Hercules and other rosin suppliers have received USDA clearance on rosin such as we use. I will gladly supply you with copies of these documents and other references if you desire them. As to the controlling of the phenol material you detected in our discharge, we know no way of doing it. Rosin size is an important raw material for Allied and most every other paper mill.

Very truly yours,

93-1695

STATE OF MICHIGAN

GENERAL RESOURCES COMMISSION

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING, MICHIGAN 48909

September 27, 1983

U. G. Stoeffler
Allied Paper, Inc.
2030 Portage St.
Kalamazoo, MI 49001

Re: Reissuance of NPDES Permit
No. MI 0000779 (Bryant Mill)

Dear Mr. Stoeffler:

Enclosed you will find a copy of your draft NPDES permit and briefing memo/fact sheet. This draft permit will be prepared for public notice soon. You are welcome to comment on this permit prior to October 17, 1983 and during the 30-day public notice period.

If you have any questions, please contact me at (517) 373-8088.

Sincerely,

Lyell Thomas
Permits Section
Surface Water Quality Division

DISKS
mixed
Legal
WP Tool

RECEIVED
SEP 29 1983
R & D

NCASI 000843

PUBLIC NOTICE

Date:
Permit No.: MI 0000779

The Michigan Water Resources Commission proposes to reissue a discharge permit to: Allied Paper, Inc. for the Bryant Mill in Kalamazoo. The applicant manufactures bible paper, light weight printing papers and other speciality papers. The applicant discharges treated process wastewater to Portage Creek.

Comments or objections to the draft permit received by _____ will be considered in the final decision to issue the permit. Persons desiring information regarding the draft permit, procedures for commenting or requesting a hearing, should contact: Permits Section, Surface Water Quality Division, Department of Natural Resources, P.O. Box 30028, Lansing, Michigan 48909, Phone (517) 373-8088.

Thomas:tkr

NCASI 000844

Michigan Department of Natural Resources
Surface Water Quality Division
Briefing Memo/Fact Sheet

Permit No. MI 0000779

APPLICANT:

Allied Paper, Inc.
Bryant Mill
2030 Portage St.
Kalamazoo, Michigan 49001

PROPOSED ACTION:

Staff will recommend reissuance of NPDES Permit No. MI 0000779 authorizing the discharge of up to 950,000 gallons per day of treated process wastewater to Portage Creek.

SIGNIFICANT DATES:

December 20, 1974	Current permit issued.
April 24, 1979	Application for permit reissuance.
June 9, 1980	Application updated.
December 18, 1981	Application updated.
June 14, 1982	Application updated.
June 29, 1982	Application updated.
November 15, 1982	Application updated.
September 30, 1979	Current permit expiration date.
December 31, 1988	Proposed permit expiration date.

EXISTING FACILITIES:

Prior to December 1980, Allied Paper operated two mills at this site, the Bryant Mill and the Monarch Mill. In December of 1980 the Monarch Mill was closed and has since been torn down. However, the Monarch clarifier was maintained and functions as the final treatment of process wastewater prior to discharge to Portage Creek (outfall 002). Around 60% of the Company's total wastewater flow is sent to the municipal sanitary sewer. The flow from the Monarch clarifier comes from the Bryant Mill clarifier which is automatically apportioned via a computerized system. The system uses a total organic carbon analyzer. This system maximizes the loading which can be placed on the Monarch clarifier without exceeding permit limitations for discharging to Portage Creek. Sludge from both clarifiers is pumped to unlined drying lagoons adjacent to Portage Creek.

RECEIVING STREAM:

Name/Major Basin and Designated Uses: Portage Creek/Kalamazoo River Basin is classified for Recreation-partial body contact; Fish, Wildlife, and Aquatic life - intolerant fish, warm-water species; Agriculture; Commercial; Water Supply - industrial; and other uses.

7-day 10 year drought flow: 27 cfs

Ratio of discharge flow to stream drought flow: 1 cfs to 22.5 cfs

Mixing Zone: The right ¼ of Portage Creek downstream from the point of discharge (Outfall 002) to the Alcott Street bridge.

MAP/SKETCH OF DISCHARGE LOCATION: (See Attached Sheet)

EXISTING/PROPOSED EFFLUENT QUALITY: (From MDRs for March 1982 through February 1983)

Parameters	Minimum	Average	Maximum
Flow (MGD)	—	0.427	1.548
BOD_5 (lbs/day)	—	390	769
Total Suspended Solids (lbs/day)	—	136.7	648
Settleable Solids (mg/l)	—	0.05	0.05
pH	6.5		7.9

The applicant has addressed the analysing and reporting requirements for toxic pollutants and hazardous substances in their discharge(s) in accordance with applicable regulations.

HISTORY AND PERMIT DEVELOPMENT BACKGROUND:

The permittee has been in substantial compliance with the terms of their current permit. However, the effluent limitations have been changed as a result of the need to consider stream allocation of the limited assimilative capacity of this stretch of the Kalamazoo River.

The Water Quality Surveillance Section evaluated the effluent limits for eight discharges to the Kalamazoo River from Kalamazoo through Otsego. The facilities evaluated were the Kalamazoo WWTP, the James River Corp., the Plainwell Paper Co., the Plainwell WWTP, the Menasha Paper Co., the Mead Corp., the Otsego WWTP, and the Allied Paper Co. The critical period of the year for this stretch of the river is May through September. During this time the state dissolved oxygen standards require better treatment of the wastewaters (BOD_5) than do the EPA effluent guidelines. Therefore, Allied's draft permit effluent limits for the May-October period for BOD_5 represent waste load allocation of the limited assimilative capacity and are equal to the Company's current permit limits for BOD_5 loadings.

During the period of October through April, dissolved oxygen will not be a limiting factor and the permit limit for BOD_5 will be equal to the limit allowed by the EPA effluent guidelines for nonintegrated fine paper 40 CFR 430.180 November 18, 1982. The other draft permit limitations for the wastewater discharge to Portage Creek, except for BOD_5 during the summer months, represent the federal BPT and BAT guideline limits based on a production rate of 240.1 tons/day and 30% of the Company's total wastewater flow being discharged to Portage Creek (40 CFR 122.50 April 11, 1983).

CURRENT PERMIT: (See Attached Sheet)

DRAFT PERMIT: (See Attached Sheet)

ADDITIONAL REQUIREMENTS NOT IN CURRENT PERMIT:

This draft permit for reissuance contains three special conditions which are not in the current permit. They are:

a. A short-term waste characterization study.

b. A toxic chemical notification requirement.

c. A program for effective residuals management (PERM) submittal requirement.

A schedule of compliance has been provided for the above special conditions where appropriate.

The waste characterization study is being required since a recent point source wastewater survey by staff indicated the presence of certain organics in the discharge.

The chemical notification requirement is universal for many facilities with the potential for critical materials, priority pollutants, or hazardous substances.

The PERM requirement is included to address the handling and disposal of the wastewater treatment residuals produced from the Bryant and Monarch clarifiers.

PROPOSED DETERMINATIONS

The Surface Water Quality Division has examined this facility's application. The effluent limitations contained in the proposed permit are based upon application of guidance materials or engineering judgment reflecting "best practicable control technology currently available", "best available technology economically achievable" or "best conventional pollutant control technology", and the State Water Resources Commission Act, as amended, and the Water Quality Standards promulgated thereunder, whichever is more restrictive. The Michigan Water Resources Commission proposes to issue the applicant a permit to discharge, subject to effluent limitations and certain other conditions within the permit.

NCASI 000847

[illegible]

Any person interested in a particular application or group of applications may leave his name, address, and phone number as part of the file for an application. The list of names will be maintained as a means for persons with an interest in an application to contact them with similar interests.

[illegible]

If submitted comments indicate a significant public interest in the application or if useful information may be produced thereby, the Michigan Water Resources Commission at its discretion, may hold a public hearing on the application. Any person may request the Michigan Water Resources Commission to hold a public hearing on the application. The request should include specific reasons for the request, indicating which portions of the application or [illegible] constitutes the need for a hearing.

Public notice of a hearing will be circulated at least thirty (30) days in advance of hearings. The hearing will normally be held in the vicinity of the discharge. Thereafter, the Michigan Water Resources Commission will formulate its final determinations within sixty (60) days. Further information regarding the conduct and nature of public hearings concerning discharge permits may be obtained by writing or visiting the address shown on the Public Notice.

FIGURE 1

ALLIED PAPER MILLS
KALAMAZOO

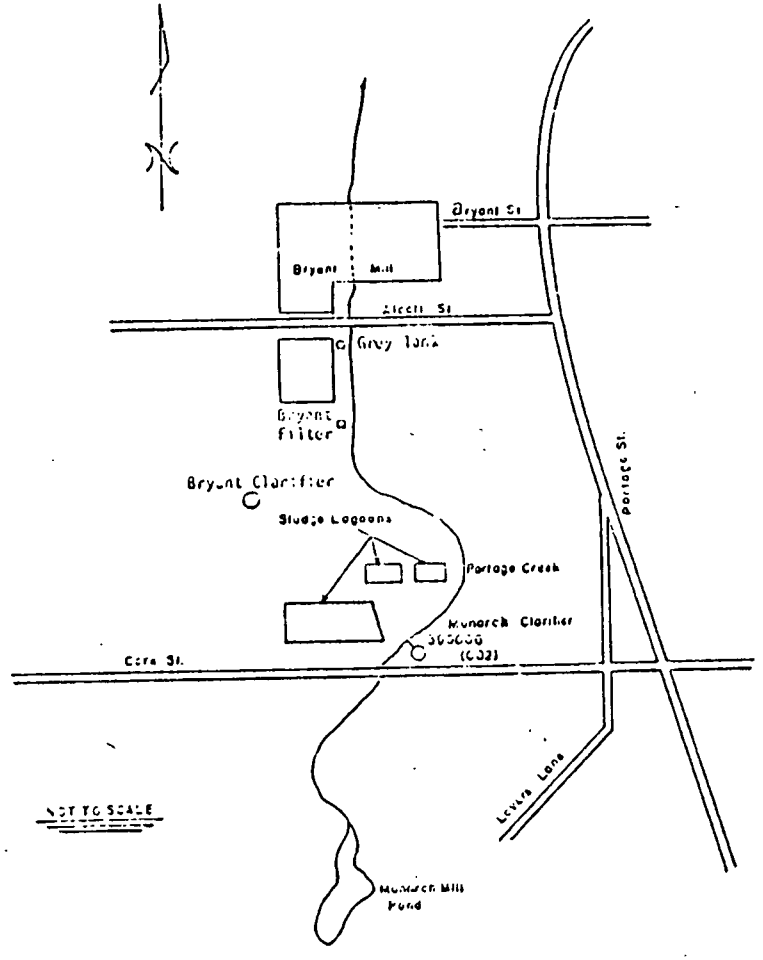
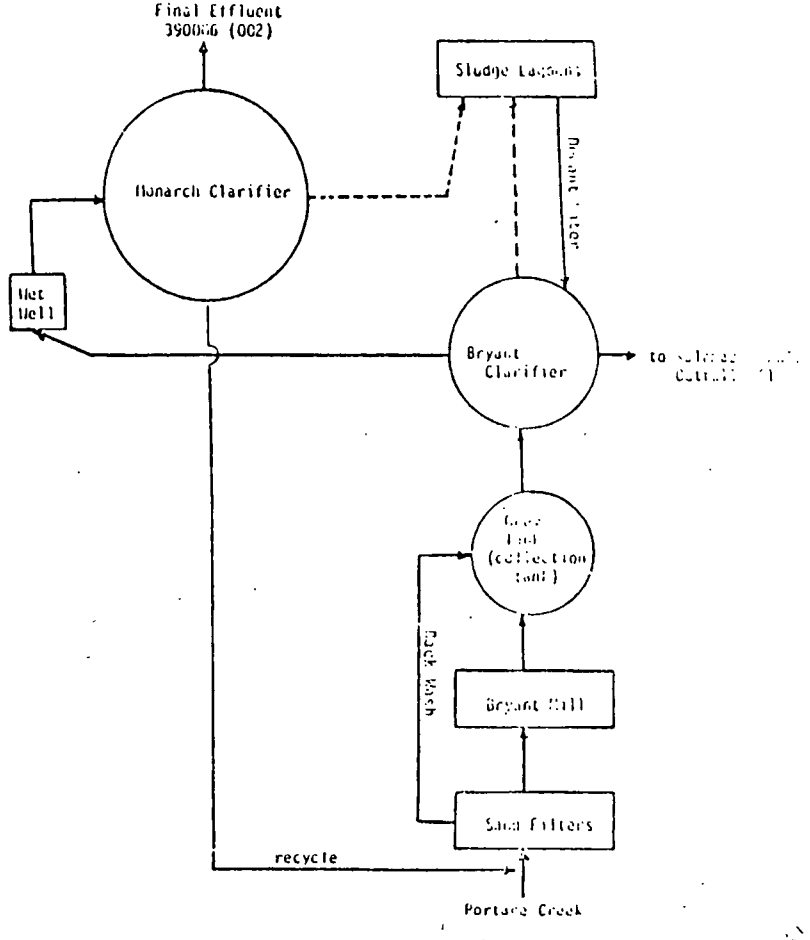


Figure 2 Allied Paper Company - Kalamazoo

Wastewater Treatment



NCASI 088549

Kendrick
EXHIBIT NO. 9
6.22.92
S. BUSSINGER

KALAMAZOO INTER-OFFICE CORRESPONDENCE

DEPOSITION EXHIBIT
KENDRICK #554
4/24/97 CC

ALLIED PAPER CORPORATION

January 20, 1958

To: H. E. Nelson

cc: E. J. Gilman
G. A. Littlefield
H. B. Johnston

From: W. E. Kendrick

SUBJECT: Operation and efficiency of the Bryant Mill waste treatment system.

The waste settling tank at the Bryant mill is operating at a lower than desirable efficiency. There are three noticeable things that occur that show the waste treatment inefficiency. They are:

1. Overloading (gallonwise) of the settling tank (7.040 MGD average since November 1, 1957.)

2. Mill "A" effluent bypassing settling tank.

3. Channeling of sludge which is very thin through the sludge bed to the overflow returning to the creek.

Although the treatment tank tests on the effluent show that our solids removal is sufficient, these results are misleading due to the amount of Mill "A" waste that bypasses treatment periodically. During a Mill "A" survey during August 1957, the amount bypassing amounted to a 1.305 MGD average over the six day test. This waste, of course, is very high in solids and BOD. The BOD efficiency of the tank is very poor, especially on days of high flow.

Another indication of poor settling tank efficiency is the low sludge consistency leaving the tank. This is especially bad during the winter months when the sludge bed freezes. Channeling of the sludge, when very thin, is much more prominent than with a thick sludge. During the colder days, the sludge bed effluent is very high in solids and the flow out is about the same as the flow into the bed. This situation, of course, lowers even further the overall tank efficiency and could be a good deal of trouble with the state WRC authorities.

Since November 1957 the efficiency figures for the settling tank have dropped. Following are [illegible] that give Bryant data and comparison with the King and March mills. [illegible] of the sludge bed were made for a week and the data given below.

EXHIBIT
8202
ALL-STATE LEGAL SUPPLY CO

KA05001183

COMMISSION
ALBERT E. HEUSTIS, M.D., Chairman
GEORGE F. LIDDLE, Muskegon, V. Chairman
GERALD E. EDDY
JOHN C. MACKIE
GEORGE S. McINTYRE
[illegible]
[illegible]

STATE OF MICHIGAN
WATER RESOURCES COMMISSION
JOHN B. SWAINSON, GOVERNOR

STAFF OFFICES
200 Mill Street
[illegible]
STATION 8
LANSING 13, MICHIGAN

LEGAL COUNSEL
PAUL L. ADAMS
[illegible]
STAFF
MILTON F. ADAMS
[illegible]
LORING F. DEMING
[illegible]
NORMAN BILLING
[illegible]
JOHN L. DESMONT
[illegible]

August 2, 1961

Dr. Ward Harrison, President
Allied Paper Corporation
Kalamazoo, Michigan

Dear Dr. Harrison:

Enclosed herewith is a copy of a report of waste survey at Allied Paper Corporation (Monarch, Bryant, and King Divisions), Kalamazoo, June 27 and 28, 1961.

We would like to draw your particular attention to the by-passing of waste, prior to sedimentation, at the Bryant and King Divisions. We understand that new equipment is on order to correct the deficiencies at Bryant Division. Steps should also be taken to correct the problem at King Division.

If you or any of your technical people wish to discuss our report further, we would welcome this opportunity.

Very truly yours,

Loring F. Deming
Chief Engineer

RWP:jb
cc: C. Harvey

EXHIBIT
8205
ALL-STATE LEGAL SUPPLY CO

DEPOSITION
EXHIBIT
Gilman #619
6/20/97 cc

Gilman
EXHIBIT NO. 18
1-19-93
P. MORETTI

0002779

KA04800071

SA 010966

WATER RESOURCES COMMISSION

Memorandum

To: R. W. Purdy

From: R. Courchaine RJC

Date: May 28, 1965

Subject: Allied Paper Corporation, Bryant Mill, Kalamazoo

I called Jack Gilman of this Company to obtain information regarding the bypass of wastes into the Bryant Mill Pond from the large sewer at Alcott Street, observed by Bennistom Tuesday morning, May 18, 1965.

Gilman said he could not recall any trouble at the Bryant Mill which would account for any bypassing. He promised to check this out further and will report back to us in writing.

cc: C. Harvey
W. Bennistom

lma

0002732

Gilman
EXHIBIT NO. 28
1-19-93
P. MORETTI

C. Harvey

WATER RESOURCES COMMISSION
Memorandum

To: R. Purdy & Files

Subject: Allied Paper - Bryant Mill

From: R. Courchaine RJC

Date: June 16, 1965

Jack Gilman called today to report a by-pass at the Bryant Mill on Friday, June 11. A key sheared in the clarifier scraper mechanism. This was repaired at 4:00 p.m. that d but broke down again when the unit was started up. The clarifier was cleaned of sludg and started up Saturday at 2:00 p.m.

Jack believes that the sludge pump must be operated more frequently to prevent sludge build-up and this will now be done.

He commented regarding the suggestion in our recent letter that another waste pump be for standby. He said he reached the same conclusion a few weeks ago, and has turned t over to the Engineering Department. They think perhaps it might be better to install large pump which would handle normal flows and retain two of the present pumps for sta and intermittent use during peaks.

He said they are now de-inking only at the Bryant Mill. De-inking at the King Mill we discontinued two weeks ago; there are no plans to de-ink again at King.

RJC:ms
cc: C. Harvey

Gilman
EXHIBIT NO. 31
1-19-93
P. MORETTI

SA 0114

KA04800111

MICHIGAN WATER RESOURCES COMMISSION

Staff Report

Allied Paper Corporation, King Division
Kalamazoo, Michigan

July 14, 1970

On June 16, 1970, this writer received information that the above company was by-passing untreated waste into the Kalamazoo River. On June 17, this fact was confirmed and samples were taken of the waste discharge and from the Kalamazoo River. The bypass occurred as the result of the drive gears breaking for the clarifier scraper mechanism. Company representatives stated that efforts were being made to obtain replacement parts from either of two sources. At that time, they expected to receive new gears within one week.

The analyses for samples obtained on June 17, 1970, is as follows:

Source	D.O. mg/l	B.O.D.5 mg/l	Susp. Sol. mg/l	Susp.Vol. Sol.mg/l	pH
Kalamazoo River; M-96 Highway (above Allied Paper)	8.8	6.4	17	14	8.5
48" con. sewer; L. bank Kalamazoo River, 300 yds. N. of M-96 (Allied Paper flow)	-	320	1120	470	7.6
Kalamazoo River; Hills Street (below Allied discharge)	8.8	8.4	35	19	8.4
Kalamazoo River; Patterson Street (below both Allied & Portage Creek)	8.0	78.0	30	14	8.3

Because of other waste sources which enter the river, further sampling was not practical to identify oxygen degradation from Allied Paper's King Division. However, it is interesting to note that the suspended solids concentration jumped from 17 mg/l above the loss to 35 mg/l below the King Division's discharge. The Hills Street bridge is about 3/4 mile below the King Division's outfall.

Other inspections were made of conditions and progress on repair on June 19, and June 30. The writer understands that the clarifier was put back in use at 9:30 a.m., July 7, 1970.

DEPOSITION EXHIBIT
Allied # 517
4/23/97 CC

EXHIBIT
8209
ALL-STATE LEGAL SUPPLY CO

WATER RESOURCES COMMISSION
4056 Plainfield Avenue, N.E.
Grand Rapids, Michigan 49505

November 19, 1975

Mr. Jack Gilman
Allied Paper Incorporated
P. O. Box 2528
Kalamazoo, Michigan 49003

Dear Mr. Gilman:

The City of Kalamazoo relayed a complaint in regard to turbidity and discoloration of Portage Creek between Cork and Alcott Streets. Our information indicated this was occurring on weekends, especially Saturdays.

In order to confirm the basis of this complaint, one of our staff members visited the complainant on Saturday, November 8, 1975. The river remained normal until approximately 10:00 A.M. and then the river water was noted to change drastically with a white color and marked increase in suspended solids.

A followup at the Monarch clarifier showed this to be the source of the high turbidity and suspended solids. Further contact with mill personnel confirmed that cleanup and washdown of equipment beginning around 7:00 A.M., overloaded the clarifier's capability and a substantial carry-over of suspended solids takes place two to three hours after cleanup operations begin.

A grab sample of the clarifier effluent taken on Saturday, November 8, 1975, shortly after 10:00 A.M. had the following concentrations:

5-Day B.O.D.	146 mg/l
Suspended Solids	212 mg/l
Volatile Suspended Solids	68 mg/l

If the waste volume is normal and the concentration remained at the level of the grab sample, the daily limitation of pounds would be almost double the level of the permit.

Is there a procedure or a change in method or adjustments that can be accomplished to overcome this periodic short-term exceedence of permit levels?

More

DEPOSITION EXHIBIT
Allied #523
4/23/97 cc

EXHIBIT
8214
ALL-STATE LEGAL SUPPLY CO

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

March 21, 1983

TO: Files of Allied Paper

FROM: John Vollmer, Surface Water Quality Division JKV

SUBJECT: Site Visit to Allied Paper on March 3, 1983

The Plainwell office received a complaint on February 22, 1983 concerning the Portage Creek at Kalamazoo. Sandy, the dispatcher, received the message. According to the complaintant, the creek was white and milky. I called Sandy and obtained the name and phone number of the complainant and phoned her.

Mrs. Barabara Barnhart (phone 616-342-4065) stated that the creek was white and that it frequently is a shade of white. I thanked her for the information, promised to check on the creek, and asked her to call if the creek was white again. She called Plainwell again on the following day.

The only paper mill on the creek is Allied Paper, so I began in that area. Before the inspection, on March 3 at 10:00 A.M., Leon Vine and I stopped at the point where Portage Creek crosses Kilgore Road, upstream of Allied Paper. We both noted that the water was perfectly clear with no trace of whiteness.

We visited both the Monarch and the Bryant clarifiers and observed the outfall to Portage Creek. The water going into the creek was pure white. It forms a band of white along the west one-third of the creek until it mixes with the creek water. We checked the creek at Alcott Street, at Stockbridge Street, and at Gibson Street (near the point where the creek enters the Kalamazoo River). At each of these places the creek is milky. I could not see the bottom except at points where the sunlight was direct and undiffused. In diffused light or shade, the creek bottom was not visible.

I feel that this visit was not conclusive. I am planning a second visit as soon as possible, for the purpose of collecting samples.

EXHIBIT
8222
ALL-STATE® INTERNATIONAL

0020804

DEPOSITION EXHIBIT
Allied #526
4/23/97 CC

92-2362

Tom K - reply - rcd - for Od Mtg

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345-7131

October 2, 1969

Mr. Robert Courchaine
Regional Engineer
Bureau of Water Management
Department of Natural Resources
Stevens T. Mason Building
Lansing, Michigan 48926

Dear Bob:

We are pleased to announce that Allied Paper as of 8:00 on Monday morning, September 29, 1969, began sending the effluent from its Bryant clarifier to the City of Kalamazoo interceptor.

We appreciate the fine cooperation we have had with you and other members of the staff in helping us with this plan.

Best personal regards.

Yours very truly,

ALLIED PAPER INCORPORATED

U. G. Stoeffler
Manager Process Development

UGS:ks

cc: R. M. Levy - Allied
E. J. Gilman - Allied
Mr. Donald Swets - Dept. of Public Works

RECEIVED
OCT 6 1969
WATER RESOURCES COMMISSION

0002620

SA 011319

92-2315

MICHIGAN WATER RESOURCES COMMISSION

Report of Sampling

[redacted]
Kalamazoo, Michigan

[redacted]

On September 29, 1969, a sample was taken from the Monarch clarifier effluent which now consists of white water from both Monarch and Bryant mills. De-ink waste waters are now directed into the Kalamazoo municipal sanitary system. The sample of white water effluent had analyses as follows:

5 day B.O.D.	32 mg/l
Suspended solids	92 mg/l
Susp. Volatile Solids	32 mg/l
pH	7.4

This waste flow barely discolored the Bryant mill pond and represented a marked improvement over past conditions. However, Portage Creek below Alcott Street appeared virtually unchanged. This is attributed to waste from the de-ink bleach water sewer which drains into the Bryant pond about 100 yards south of Alcott Street. This flow, previously measured at about .500 mgd., had analyses as follows:

5 day B.O.D.	>73 mg/l
Suspended solids	148 mg/l
Susp. Volatile solids	68 mg/l
Chlorine	250 mg/l
pH	3.1

Little impetus has been given to the abatement of oil pollution from Allied Paper. A real problem exists in this area and was discussed between the writer and Messrs. Gilman and Stoeffler of the company on August 26, 1969. On September29, 1969, a sample taken from Portage Creek at Reed Street contained 5.2 mg/l of chloroform extractable substances

At times oil from Portage Creek and namely Allied Paper Corporation has been of sufficient quantity to cover the Kalamazoo River with an irridescent film. (35 mm slides have been taken to depict this condition).

James L. Pope

JLP:as

0002618

SA 011317

ENVIRONMENTAL PROTECTION AGENCY
SURVEY FORM
PULP, PAPER, AND PAPERBOARD INDUSTRY

NON-INTEGRATED MILLS
PART I

I. MILL BACKGROUND DATA

A. Mill & Division Name: Monarch Division, Allied Paper, Inc.

Address: 2030 Portage St., Kalamazoo, MI ZIP: 49001

Telephone: 616 / 345-7131

Corporate Affiliation (if applicable) SCM Corporation

Contacts and Title: (Use an asterisk next to the responsible personnel completing the survey form).

T. I. [illegible]	Vice President - Operations
*[illegible] G. Stoeffler	Manager Process Development

B. Age of Mill

1. Year of initial construction 1885

2. Please give the year of initial startup and each year since 1952 in which any major modifications or permanent shutdowns were made which significantly affected the composition or amount of effluent from the mill.

	Year(s) of Initial Startup	Year(s) of Waste Significant Modification or Permanent Shutdown
a. Added Paper Machine Saveall(s)	One - 1974	
b. Added New Paper Machine(s)		

93-1847

STATE OF MICHIGAN

NATURAL RESOURCES COMMISSION
JACOB A. HOEFER
E. M. LAITALA
MARY F. SNELL
PAUL H. WENDLER
MARY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

HOWARD A. TANNER, Director

State Office Building
350 Ottawa N. W.
Grand Rapids, Michigan 49503
Phone: 456-6232

September 9, 1982

Mr. U.G. Stoeffler, Manager
Process Development
Allied Paper, Inc.
Kalamazoo, MI 49003

Dear Mr. Stoeffler:

Enclosed is a copy of a "Report of an Industrial Wastewater Survey" conducted at Allied Paper Company on March 1-2, 1982. The report includes the volume of wastewater discharged and results of the chemical analyses performed on the composite of the collected effluent. Grab samples were also obtained for certain determinations. In addition, a 48-hour static toxicity screening test was conducted on a portion of the composite sample at Outfall 390006 (002). The results of the tests are found in Appendix A.

The results of the survey indicate that Allied Paper's discharge to Portage Creek from the Monarch clarifier 390006 (002) met the daily maximum limitations contained in N.P.D.E.S. Permit No. MI0000779 at the time of the survey.

The composite sample collected at Outfall 390006 (002) showed a pentachlorophenol concentration of 60 ug/l (Table 1). This value is higher than the survey concentration found in the previous survey. As a result, it will be our recommendation that the current N.P.D.E.S. permit reissuance for the discharge to Portage Creek from the Monarch clarifier contain a special condition requiring short-term monitoring of this parameter to determine if a water quality based effluent limitation needs to be established.

The remainder of the report is self-explanatory. We would appreciate receiving any comments you may have on the survey report at your earliest convenience.

Very truly yours,

WATER QUALITY DIVISION

Roger Przybysz
Water Quality Specialist

RP/mam
CC: Galen Kilmer, Permit Section, Water Quality Division
Jim Forney, Office of Toxic Materials Control, Environmental Services Div.
John Bohunsky/WQD Files, Lansing
Scott Ross, Compliance Section, Water Quality Division
Jean Eldred, Kalamazoo Wastewater Treatment Plant

Kilmer
EXHIBIT NO. 14
M. LANTIS 10/27/93

SA 034341

MICHIGAN DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION BUREAU
POINT SOURCE STUDIES SECTION

Report of an
Industrial Wastewater Survey
Conducted at
ALLIED PAPER COMPANY
All Outfalls No. 390222
NPDES Permit No. MI0000799
Kalamazoo County
Kalamazoo, Michigan
March 1-2, 1982

Survey Summary

Wastewater monitoring was performed during one twenty-four hour survey period starting Monday, March 1, 1982.

The results of this survey met the final limitations in the facility's National Pollutant Discharge Elimination System (NPDES) Permit, No. MI0000799 (Table 3).

The survey results are compared to the company's Monthly Operating Report (MOR) results for March, 1982 in Table 3.

A grab sample collected at outfall 390006 (002) was split with the company for comparison of laboratory results. The company reported a higher suspended solids concentration. The BOD_5 results compared well (Table 4).

The results obtained in this survey are compared to the results of the previous survey conducted in January, 1981 in Table 5.

Groundwater drainage from the company's landfill area was sampled. The results are presented in Table 2.

Survey Comments

The composite sample collected at outfall 390006 (002) showed a pentachlorophenol concentration of 60 ug/l (Table 1).

A 48-hour static toxicity screening test was conducted on a portion of the composite sample collected at outfall 390006 (002). The sample was found to be toxic to *Daphnia magna* on an acute (short term) basis (Appendix A).

Plant Processes

Allied Paper Corporation now operates one mill in Kalamazoo. This is known as the Bryant Mill. Another mill, known as the Monarch Mill, has been permanently shut down and is being demolished. The Bryant Mill produces bible paper and other specialty papers on five Fourdrinier machines.

Under normal production the mill produces approximately 220 tons of product per day. The mill uses bleached kraft pulp manufactured at other locations.

The mill employs 389 people and operates 24 hours per day, 7 days per week. Production was considered normal during the survey.

Water, Wastewater & Treatment

Portage Creek supplies the process water. Water used at the Bryant Mill is chlorinated and passed through sand filters prior to its use. Potable water for the mill is obtained from the City of Kalamazoo. Domestic wastes are discharged to the city's sanitary sewer system.

Schematics of the wastewater treatment system and plant configeration are shown in Figures 1 & 2. Wastewater received at the 100-foot circular Bryant clarifier originates from excess white water, filter backwash, and from the lime-soda ash softening process used for boiler feed water. A polymer is added to improve settling in the Bryant clarifier. Alum is available but wasn't used during the survey. A portion of the Bryant clarifier effluent is discharged to the city sanitary sewer system. The rest is discharged to the 90-foot circular Monarch clarifier. The company maximizes the loading which can be placed on the Monarch clarifier without exceeding permit limitations for discharging to Portage Creek. Flow is automatically apportioned via a computerized system utilizing a total organic carbon analyzer. Some of the Monarch clarifier effluent is recycled for process water. The remaining portion is discharged to Portage Creek via outfall 390006 (002).

Sludge from both clarifiers is disposed of on plant property.

Survey Procedure

The flows and samples were obtained as follows:

Sample Description	Flow Measurement	Sampling Methods & Location
390006 (002) (Monarch Mill)	Company installed 36-inch rectangular weir/staff installed water level recorder.	Automatic air activated composite sample, 4-aliquot grab composite sample and individual grab sample; collected at discharge from clarifier.
390004 (001) (Bryant Mill)	Company totalizer.	4-aliquot grab composite sample and individual grab sample; collected at discharge from clarifier.
Drainage from Landfill	--	Individual grab sample; collected at service road to Bryant clarifier

A water level recorder provides a continuous account of the liquid level or head above the crest of a weir. A head versus time graph is obtained for the duration of the survey period. The total volume of wastewater over the weir during the survey period is computed from the graph.

An automatic sampler composites samples at timed intervals. Samples may be proportional to the instantaneous flow over the weir.

Extractable organic composite samples are collected by the grab composite method.

A grab composite consists of a series of individual grabs composited into one sample.

An individual grab is a single instantaneous sample.

Samples were analyzed by the Environmental Protection Bureau Laboratories located in Lansing.

Samples were preserved according to Table 6. The results of the physical and chemical analyses are presented in Tables 1 & 2. Letter codes for laboratory results are defined in Table 6.

Allied Paper Company - [illegible]

Table 1 Analyses of composite samples.

Outfalls	390006 (002)		390004 (001)	
Survey Period From	3-1-82 - 1135		3-1-82 - 1420	
To	3-2-82 - 1435		3-2-82 - 1120	
Computed flow rate[1] (M^3/day)	1,210		(5,710)	
	mg/l	kg/day	mg/l	kg/day
Suspended solids	20	20	28	160
Dissolved solids	740	900	720	4,100
Settleable solids	4	5	6	30
COD	220	270	220	1,300
TOC	75	91	74	420
BOD_5	140	170	130	740
$CBOD_5$	140	170	--	--
$CBOD_8$	130	160	--	--
$CBOD_{12}$	160	190	--	--
$CBOD_{15}$	150	180	--	--
$CBOD_{20}$	170	210	--	--
Nitrite & nitrate nitrogen-N	5.0	6.0	4.3	25
Ammonia nitrogen-N	0.95	1.2	0.90	5.1
Kjeldahl nitrogen-N	9.5	11	7.5	43
Total phosphorus-P	0.12	0.15	0.13	0.74
	ug/l		ug/l	
Phenol	5.2 NA	0.0063	4.6 NA	0.026
Phenols Scan				
Pentachlorophenol (PCP)	60	0.07	< 20	--
Others in scan	U	--	U	--

1 - Flow rate [illegible]d in the computation of kg/day (obtained from company totalizer).
To obtain [illegible] multiply M^3/day by 0.0002642
To obtain [illegible]s/day multiply kg/day by 2.205

Allied Paper Company - Kalamazoo

Table 2 Analyses of grab samples.

Date	Time	Flow[1] M^3/day	Temp.[1] °C	pH[1] S.U.	Residual[1] Chlorine mg/l	D.O. mg/l	Susp. solids mg/l	Diss. solids mg/l	Settle. solids mg/l	COD mg/l	TOC mg/l	BOD_5 mg/l	$CBOD_5$ mg/l
390006 (002)													
3-1-82	1450	1140	22.5	6.7	U	8.2	20	840	4	240	110	170	170
3-2-82	0745	886	21.5	6.9	U	9.0	20	730	4	220	72	130	130
390004 (001)													
3-2-82	0725	--	23.5	7.0	U	--	16	720	NA	200	75	140	--
Drainage													
3-2-82	0735	--	3.0	7.6	--	--	< 4	530	NA	21	6.7	--	--

Date	Time	$CBOD_3$ mg/l	$CBOD_{12}$ mg/l	$CBOD_{15}$ mg/l	$CBOD_{20}$ mg/l	Nitrite & nitrate nitrogen mg/l	Ammonia nitrogen mg/l	Kjeldahl nitrogen mg/l	Total phosphorus-P mg/l	O&G I.R. mg/l	O&G Grav. mg/l	Phenol µg/l
390006 (002)												
3-1-82	1450	150	180	170	190	7.2	0.64	10.	0.13	1	< 2	6.2
3-2-82	0745	130	130	160	180	4.1	0.85	8.2	0.12	1	< 2	4.0
390004 (001)												
3-2-82	0725	--	--	--	--	3.8	0.66	7.7	0.12	1	< 2	3.8
Drainage												
3-2-82	0735	--	--	--	--	0.32	0.67	1.2	0.10	< 1	< 2	--

1 - Values determined in the field at time of sampling.

Allied Paper Company - Kalamazoo

Table 3 Comparison of survey results with the facility's NPDES Permit and Monthly Operating Report.

Parameter (Unit)	NPDES Permit Final Limitations		March Monthly Operating Report				Survey Results[1]
	Daily Average	Daily Maximum	Monthly Average	Monthly Maximum	3-1-82	3-2-82	
390006 (002)							
Flow (M^3/day)	--	--	1,800	2,970	1,330	2,770	1,210 (1,450, 745)
Settleable solids (ml/l)	--	--	0.05	0.05	0.05	0.05	--
(mg/l)	--	--	--	--	--	--	4 (4, 4)
Oil & Grease (visual)	No visible film		0	0	0	0	--
(mg/l)	Quantitative analysis not required		--	--	--	--	-- (2, 2)
BOD_5 (kg/day)	230	350	226	349	195	335	170
Suspended solids (kg/day)	230	350	92.1	215	37	66.2	20
pH (S.U.)	not <6.5 nor >9.5		--	7.2 min. 6.5	6.5	6.8	-- (6.7, 6.9)

1 - Survey results are for the composite sample. Grab sample ranges are shown in parentheses ( )
To obtain MGD multiply M^3/day by 0.0002642
To obtain lbs/day multiply kg/day by 2.205

SR 034347

Table 4 Comparison of the laboratory analytical results obtained by Allied Paper Company and the Environmental Protection Bureau from the split grab sample.

Outfall	390006 (002)	
	Allied Paper	E.P.B.
Flow (M^3/day)	1,320	1,210
	mg/l	mg/l
Suspended solids	36	20
BOD_5	138.3	130

Table 5 Comparison of the previous survey results with the results obtained in this survey at Allied Paper Company - Kalamazoo.

Outfalls	390006 (002)		390006 (001)	
Survey Date From	1-26-81	3-1-82	1-26-81	3-1-82
To	1-27-81	3-2-82	1-27-81	3-2-82
Flow Rate (M^3/day)	2,500	1,210	5,806	5,710
	mg/l	mg/l	mg/l	mg/l
Suspended solids	47	20	49	28
Dissolved solids	590	740	640	720
Settleable solids	9	4	< 2	6
COD	110	220	180	220
TOC	38	75	58	74
BOD_5	62	140	110	130
$CBOD_5$	56	140	--	--
Nitrite & nitrate nitrogen-N	0.08	5.0	0.83	4.3
Ammonia nitrogen-N	< 0.01	0.96	< 0.01	0.90
Kjeldahl nitrogen-N	4.0	9.5	4.2	7.5
Total phosphorus-P	0.33	0.12	0.50	0.13
	ug/l	ug/l	ug/l	ug/l
Phenol	8	5.2	7	4.6
Pentachlorophenol	0.58	60	--	--

Table 6 Sample Preservation

Parameter	Preservative
COD/TOC/Phenol/Nutrients (Chlorine Absent)	5 drops conc. H_2SO_4/250 ml (to pH 2).
D.O.	Fixed on site.
Oil & Grease	10 drops conc. H_2SO_4/250 ml (to pH 2).
Acid Extractables	Dechlorinated (if needed) with sodium thiosulfate (1 drop 0.141 N/mg/l Cl_2/250 ml). 40 drops H_2SO_4/1000 ml (to pH 2).

Samples preserved as required, cooled to 4°C with chain of custody maintained.

Lab Letter Codes

NA - Analytical method has not yet been approved by laboratory.
U - Indicates material was analyzed for but not detected.

Survey by: Peter Ostlund, Environmental Engineer
William Long, Water Quality Investigator
Richard Irvin, Water Quality Technician

Contact with Management: U.G. (Les) Stoeffler
John Roth, Certified Operator

Hydrocarbon Analyses by: Environmental Protection Bureau Laboratory

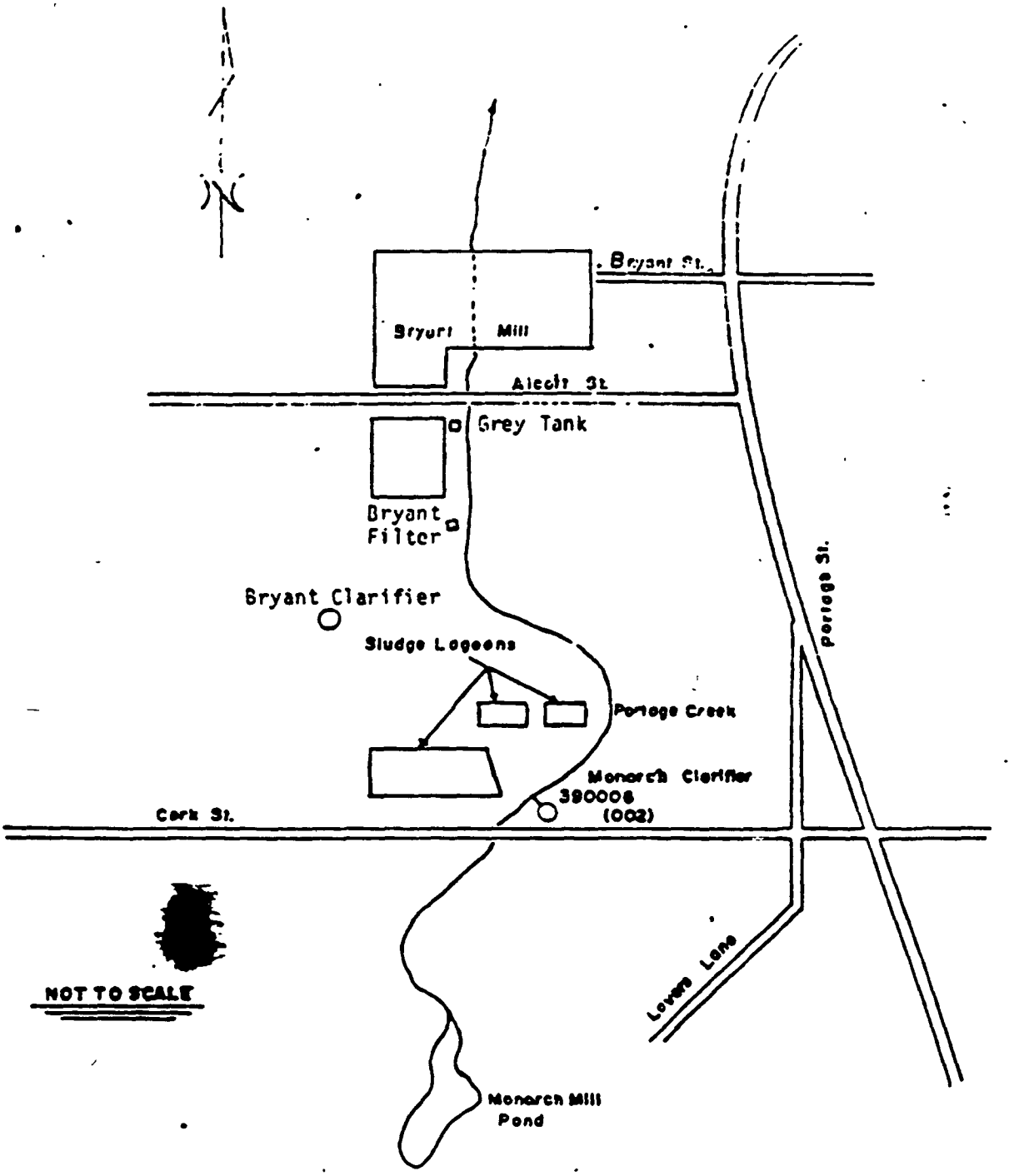
Physical, Chemical & Bacteriological Analyses by: Environmental Protection Bureau Laboratory

Report by: Peter Ostlund
William Long
Point Source Studies Section
Environmental Services Division
Environmental Protection Bureau
Michigan Dept. of Natural Resources

Distribution "A"
MM
5/17/82

FIGURE 1

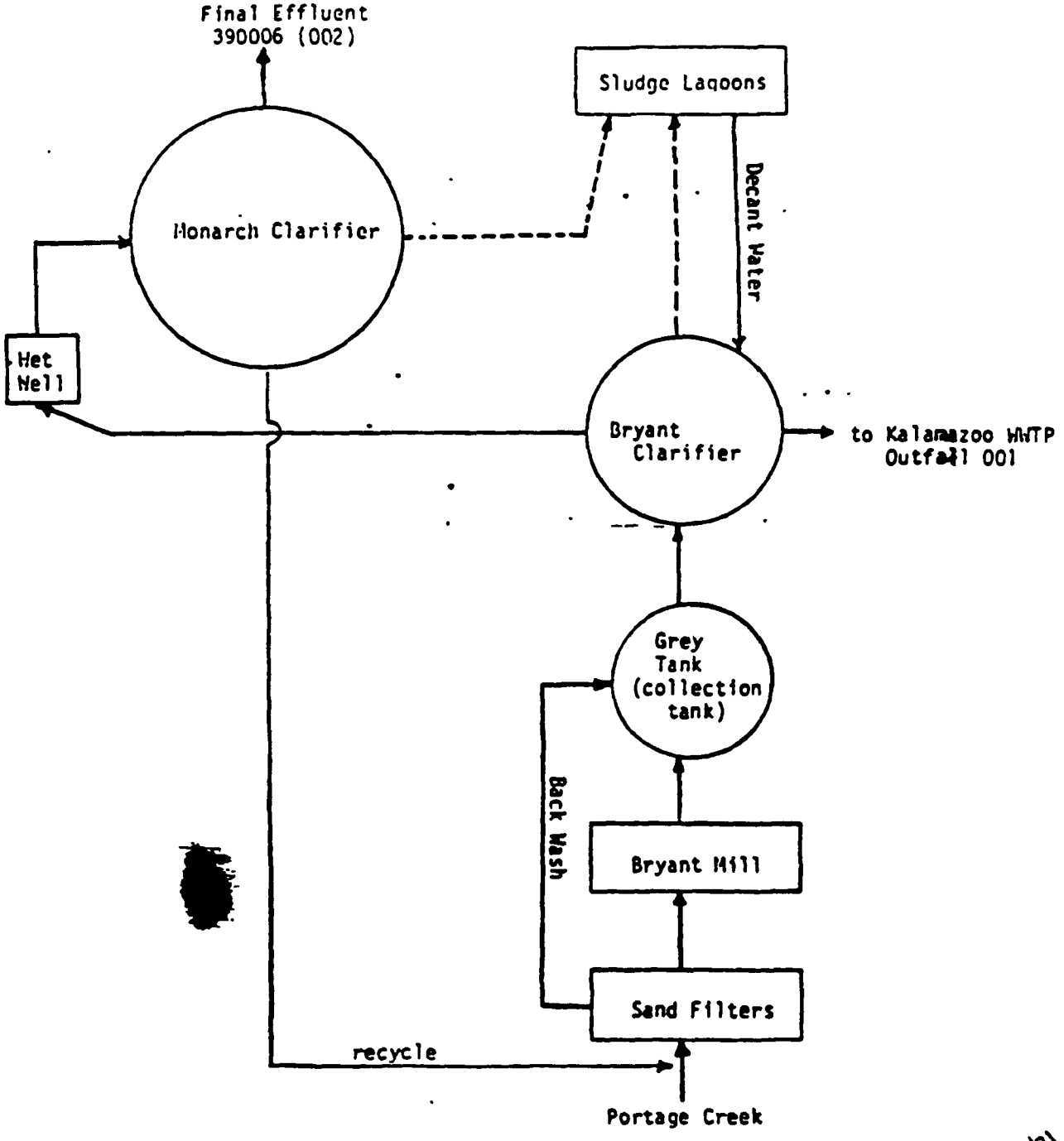
ALLIED PAPER MILLS
KALAMAZOO



TEX 9-16-76
REV 3-6

Figure 2 Allied Paper Company - Kalamazoo

Wastewater Treatment



Appendix A

Mini Screening Test for Acute Effluent Toxicity

ALLIED PAPER COMPANY
Kalamazoo, Michigan
March 3-5, 1982

Unpreserved portions of the composite sample collected from outfall 390006 (002) was tested for acute toxicity using the macroinvertebrate *Daphnia magna*. Ten daphnids (<24 hours old) were exposed to 200 ml of undiluted effluent and control water (carbon filtered Lansing city water). The daphnids, contained in pairs of beakers, were observed at 48 hours to determine the percent immobilized (Table 1). Conditions present in test solutions at 0 and 48 hours are given in Table 2. Additional details are available upon request.

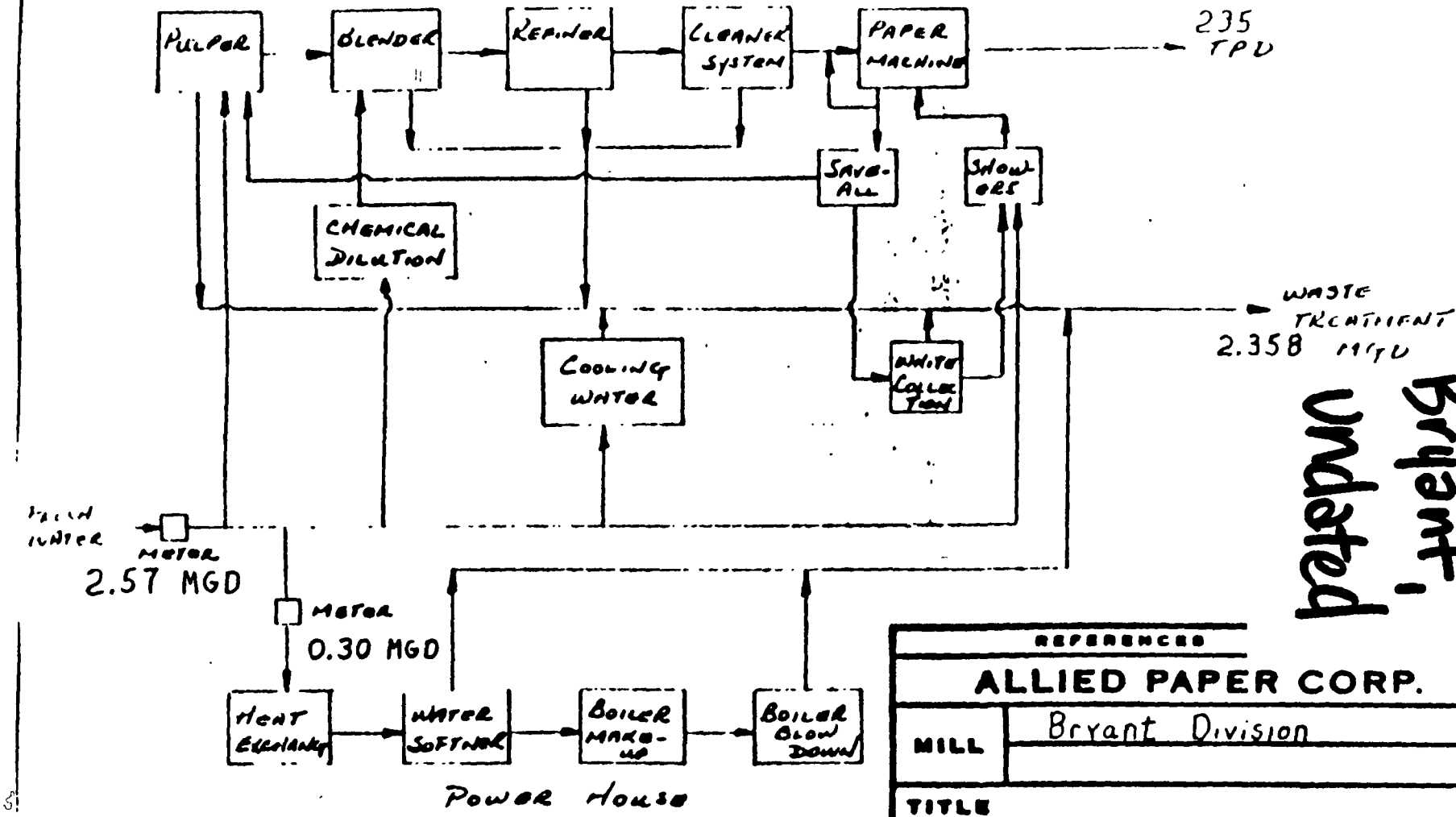
This mini screening test provides an indication of effluent toxicity at the point of discharge. The results identify possible violations of Rule 1002 (Water Quality Standards, 1973) and indicate where more extensive testing may be needed.

Table 1 Toxicity to *Daphnia magna*.

Outfall	% immobilized in 48 hours
390006 (002)	100

Table 2 Test conditions.

	Outfall 390006			
	0 hours		48 hours	
	Control	100%	Control	100%
Dissolved oxygen (mg/l)	8.5	6.3	8.4	1.8
Oxygen saturation (%)	96	70	95	20
pH (S.U.)	7.7	7.0	7.6	7.2
Temperature (°C)	20	20	20	20
Conductivity (umhos)	270	1000	270	950
Alkalinity (mg/l)	40	100	--	--
Hardness (mg/l)	84	250	--	--



Bryant, undated

REFERENCES

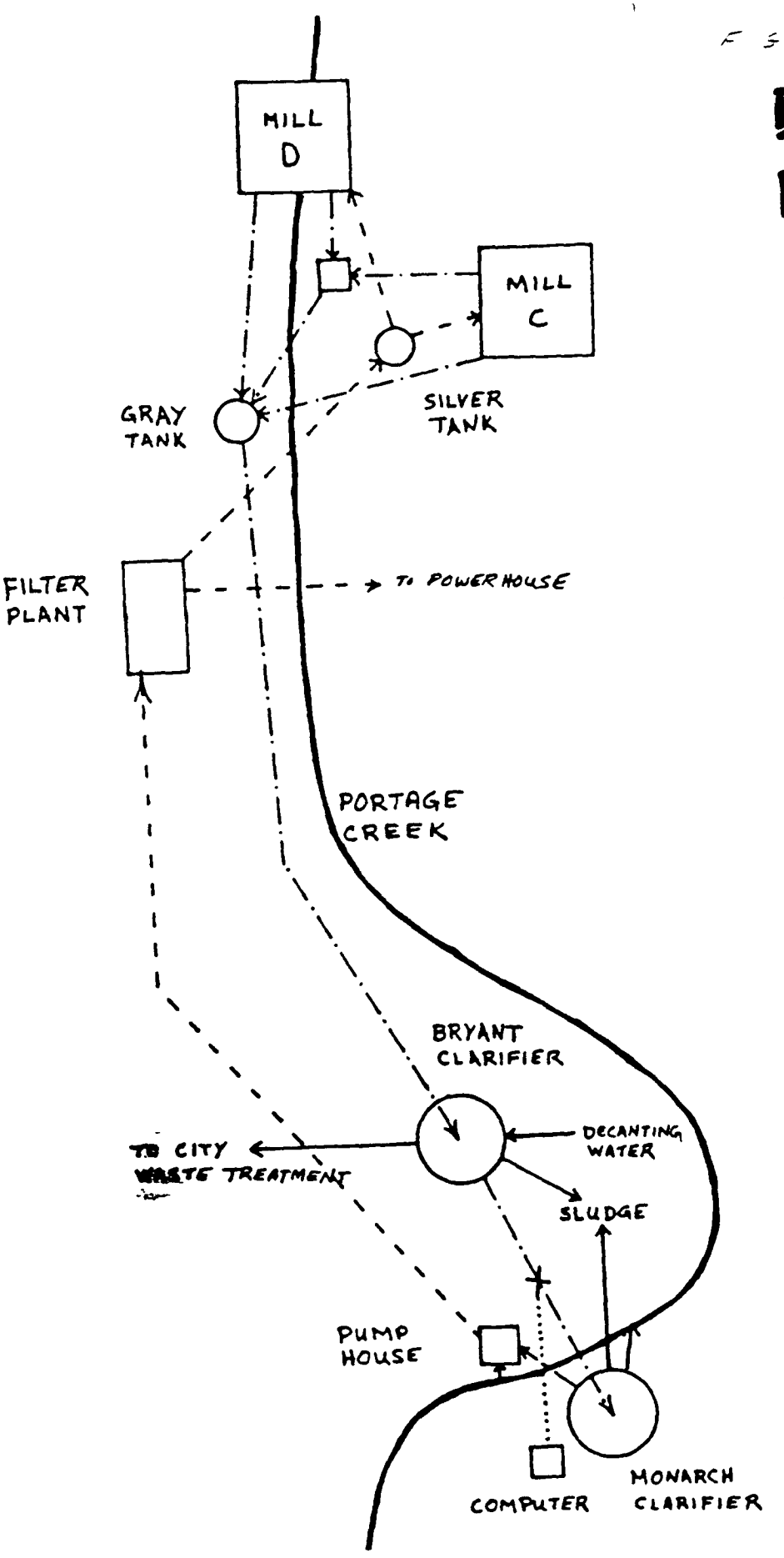
ALLIED PAPER CORP.

MILL: Bryant Division

TITLE: Mill Process Flow Diagram

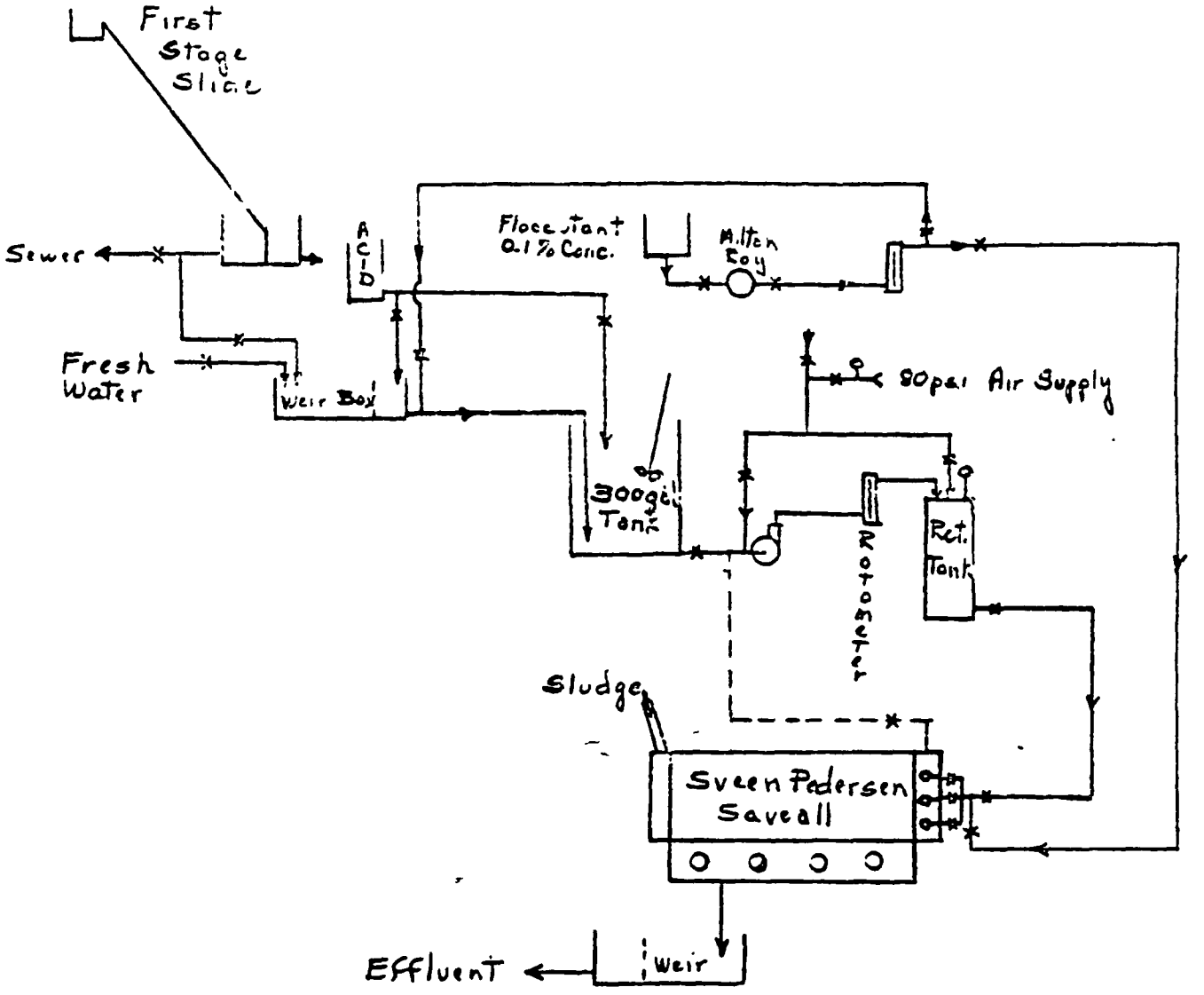
REVISIONS		SCALE	NO	DAY	YR.	DWG. No.
		DRAWN				
		TRACED				
		CHECKED				
		CHECKED				
		APPROVED				

Bryant, Monarch, Undated



000520

Flow Diagram



KING

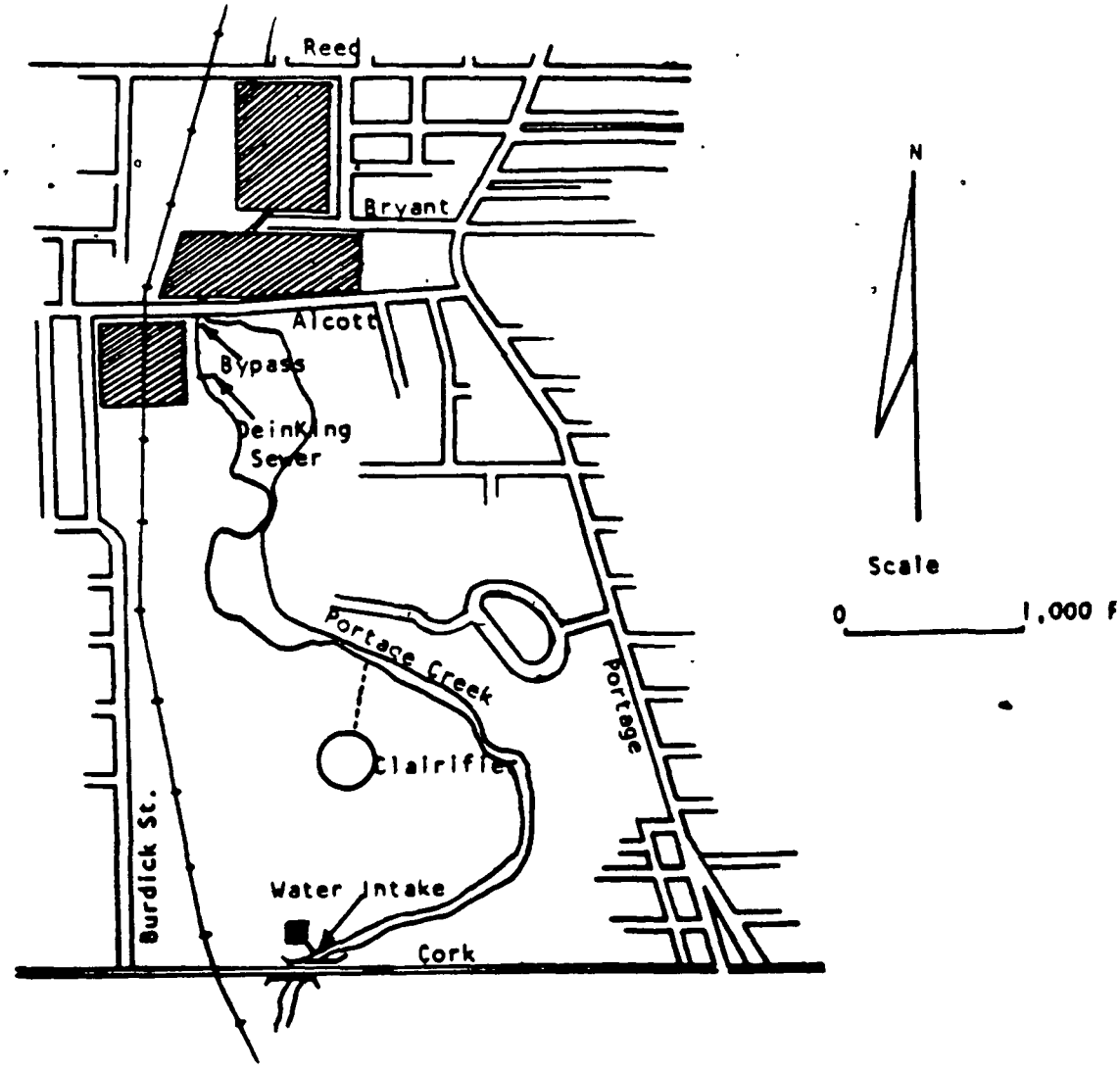
U.G.S. 2/12/59

MICHIGAN WATER RESOURCES COMMISSION

Report of Survey

Bryant Division, Allied Paper Co.

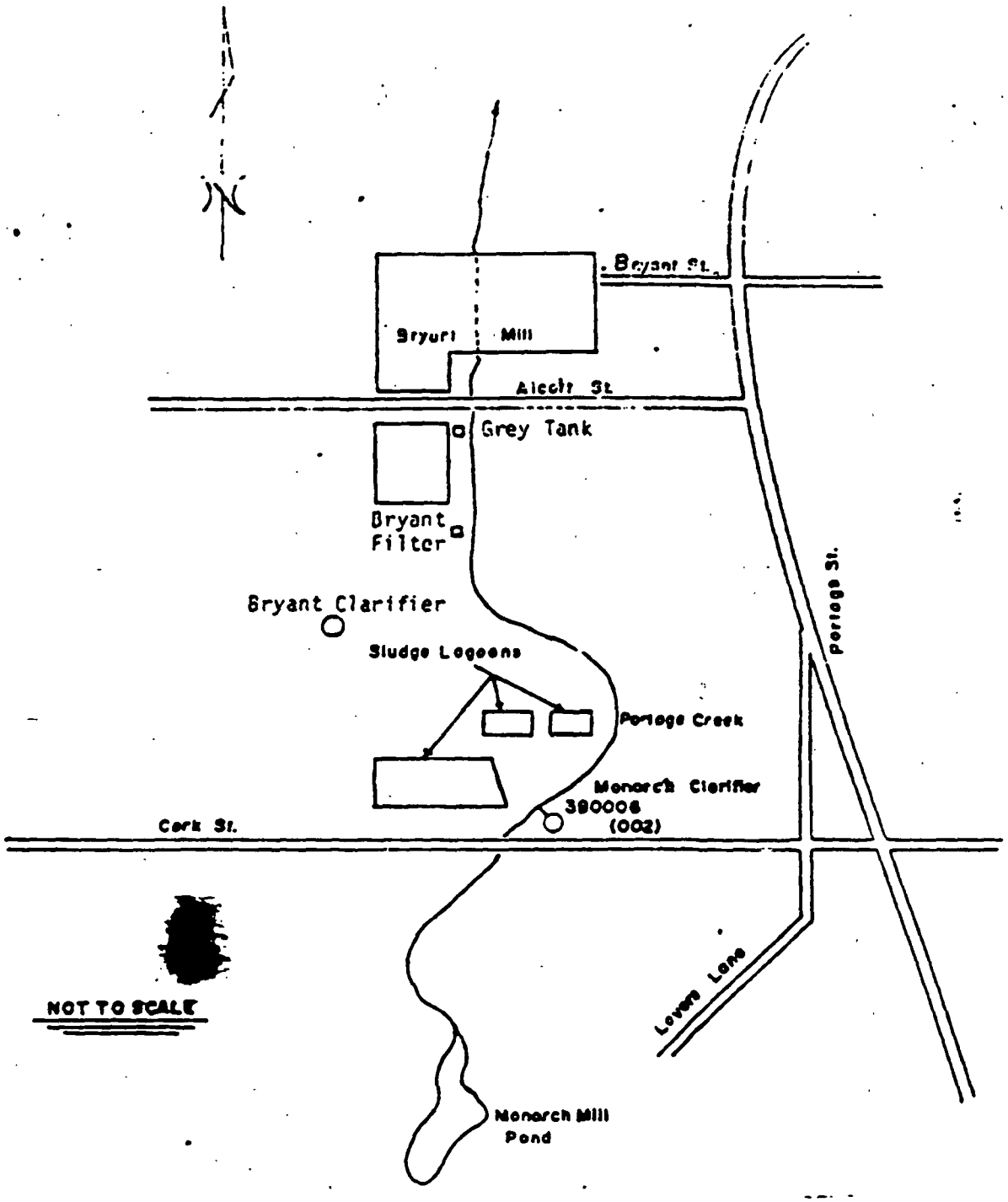
June 4,5,6, 1968



210

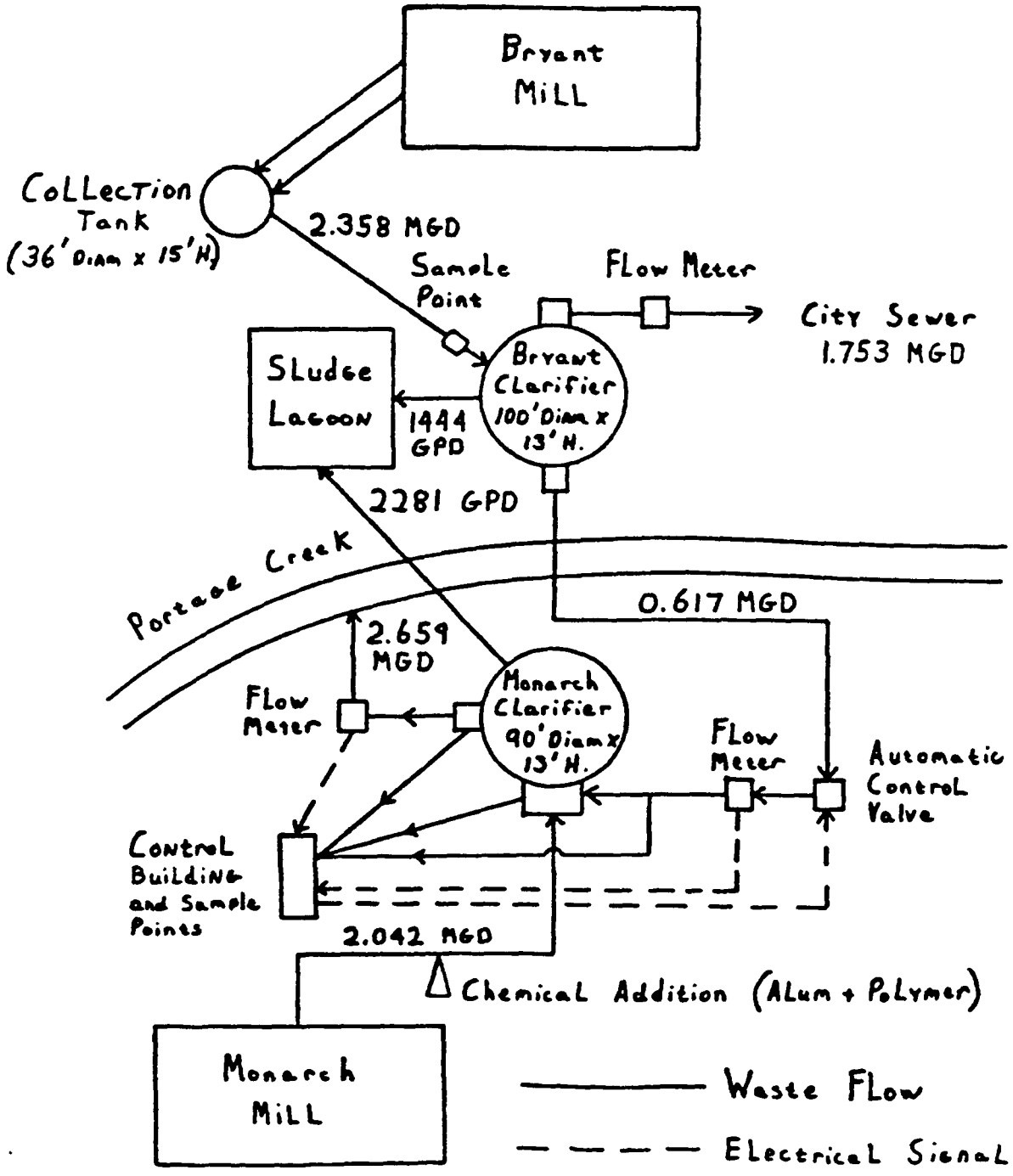
FIGURE 1

ALLIED PAPER MILLS
KALAMAZOO



TEX 9-16-76 REV 3-6

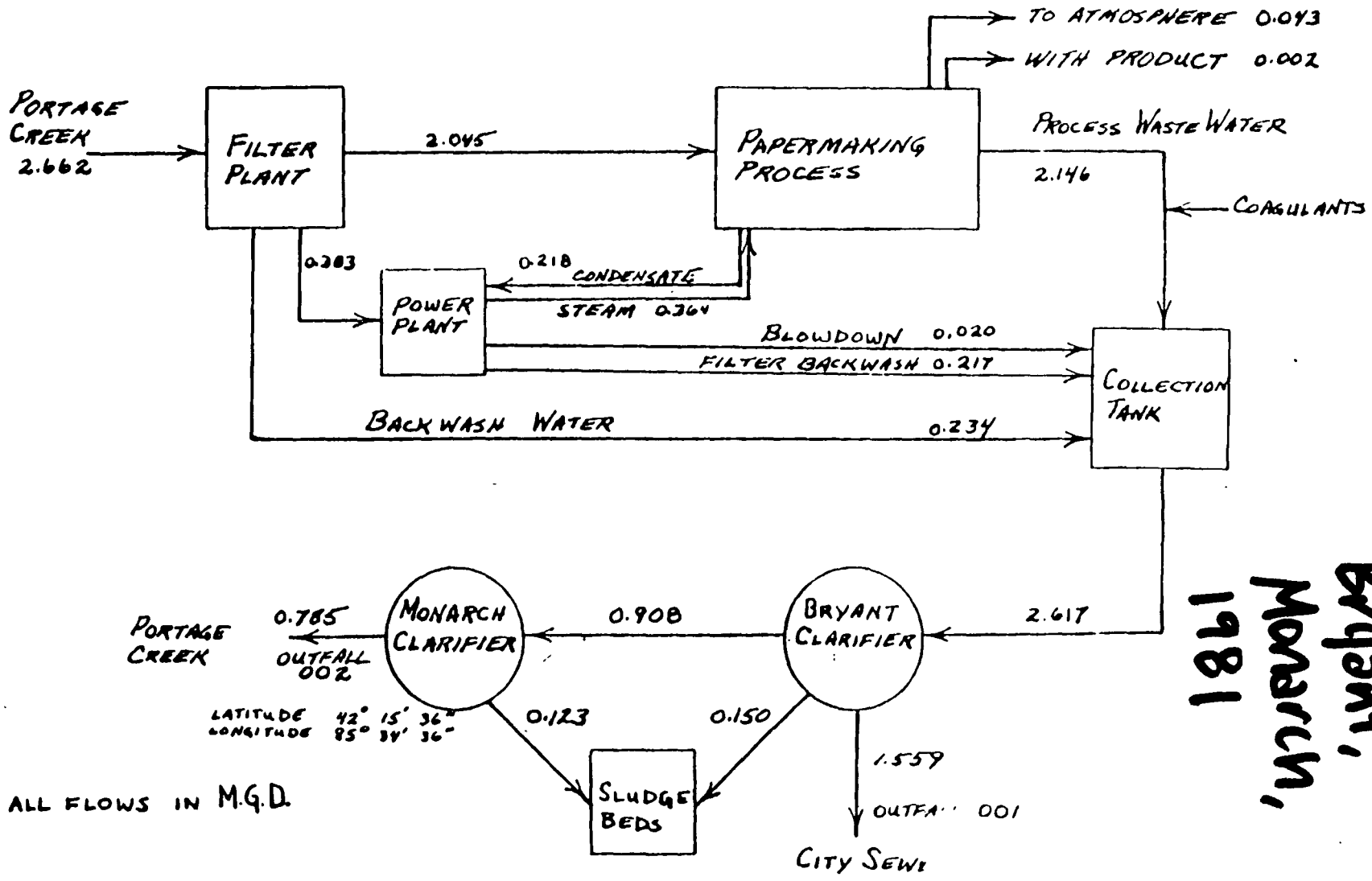
ALLIED'S WASTE TREATMENT FLOW SCHEMATIC



☆ ALL Flow Figures Are For The Period of July 1, 1997 to Oct. 1, 1977.

ALLIED PAPER INC. KALAMAZOO, MICHIGAN

SCHEMATIC WATER FLOW



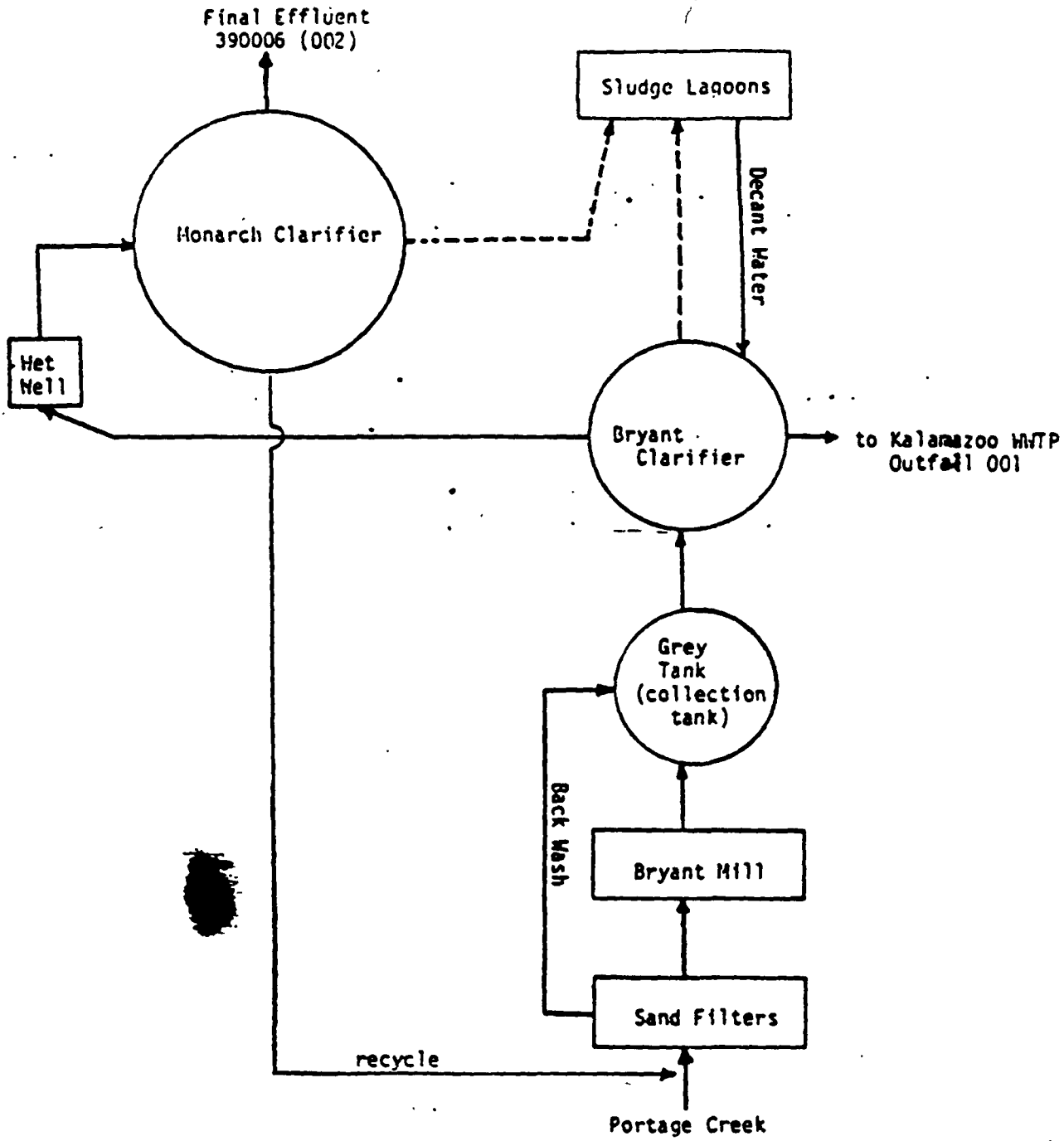
Bryant, Monarch, 1981

AWW 12-81

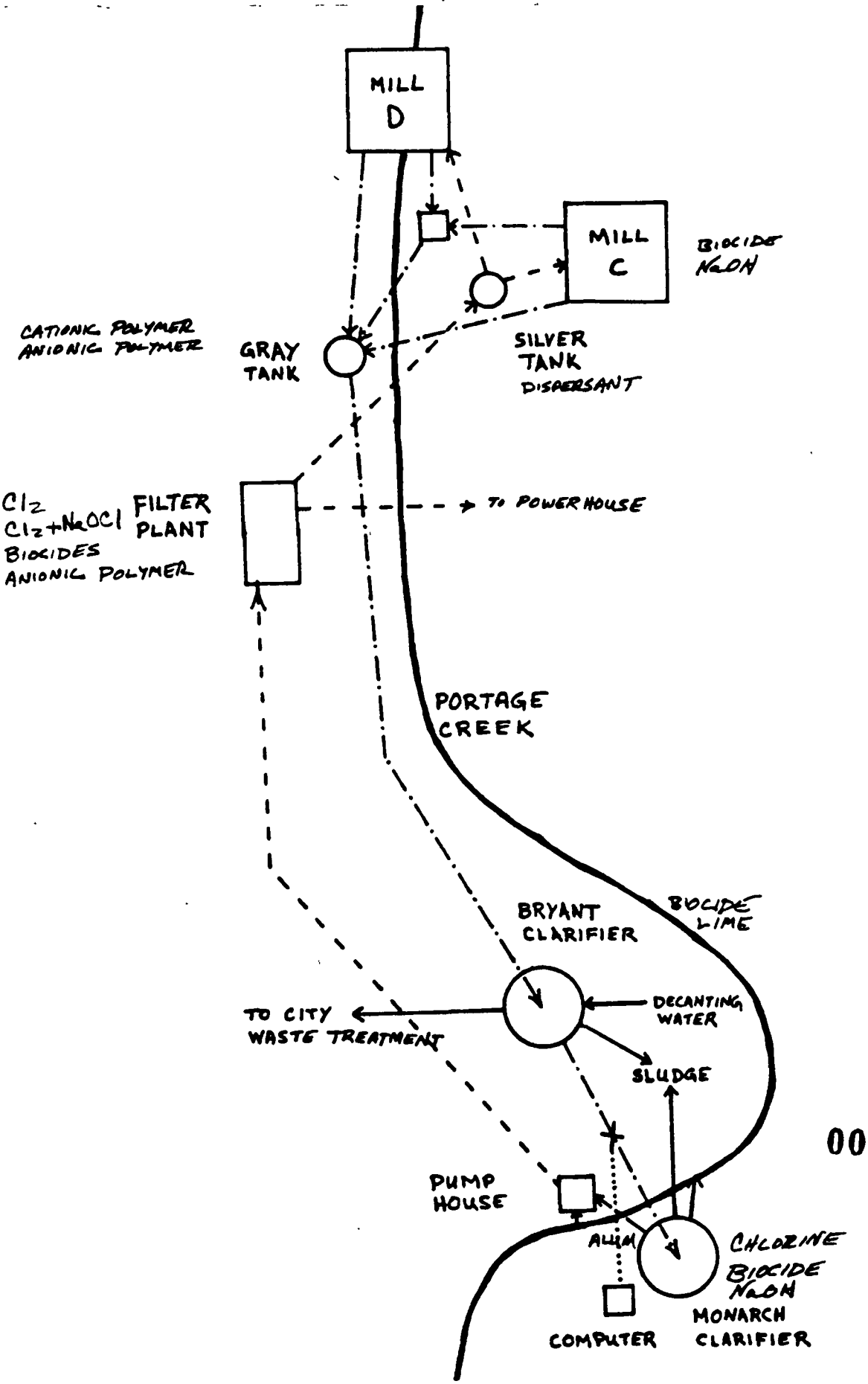
SA 838862

Figure 2 Allied Paper Company - Kalamazoo

Wastewater Treatment



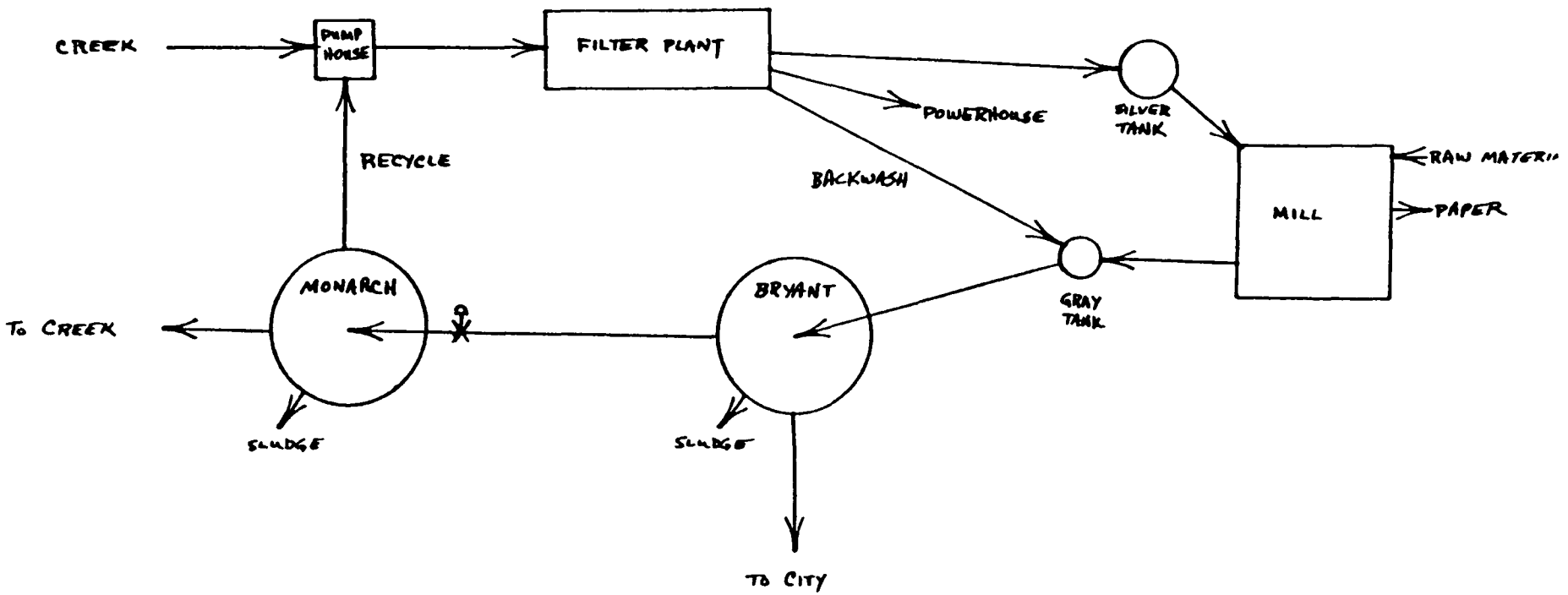
TX 4/23/81


MILL D
MILL C
BIOCIDE
NaOH
CATIONIC POLYMER
ANIONIC POLYMER
GRAY TANK
SILVER TANK
DISPERSANT
Cl_2
Cl_2+NaOCl
BIOCIDES
ANIONIC POLYMER
FILTER PLANT
TO POWERHOUSE
PORTAGE CREEK
BRYANT CLARIFIER
BIOCIDE
LIME
TO CITY WASTE TREATMENT
DECANTING WATER
SLUDGE
PUMP HOUSE
ALUM
CHLORINE
BIOCIDE
NaOH
COMPUTER
MONARCH CLARIFIER

000362

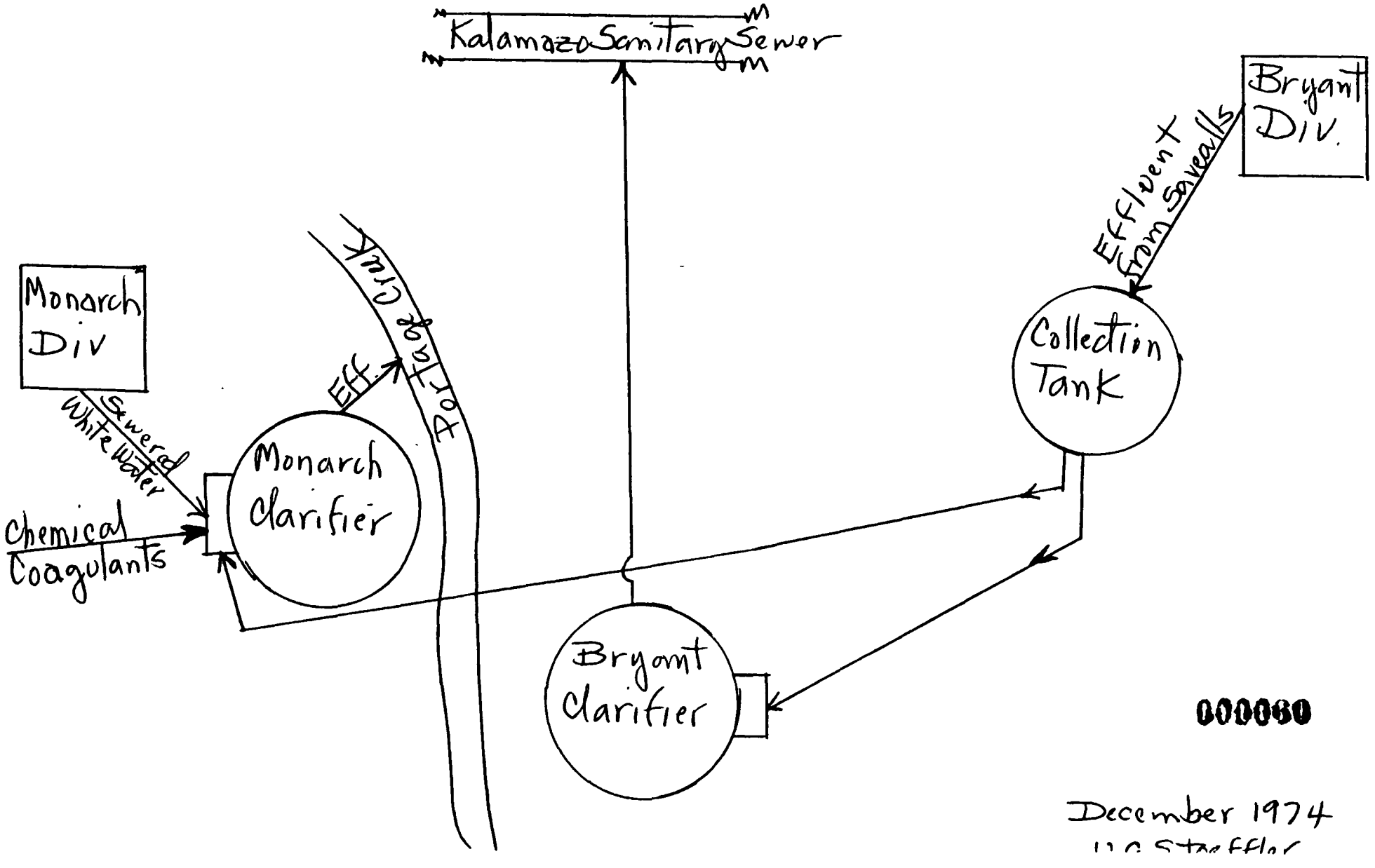
TABLE 1

WATER SYSTEM



851994 05

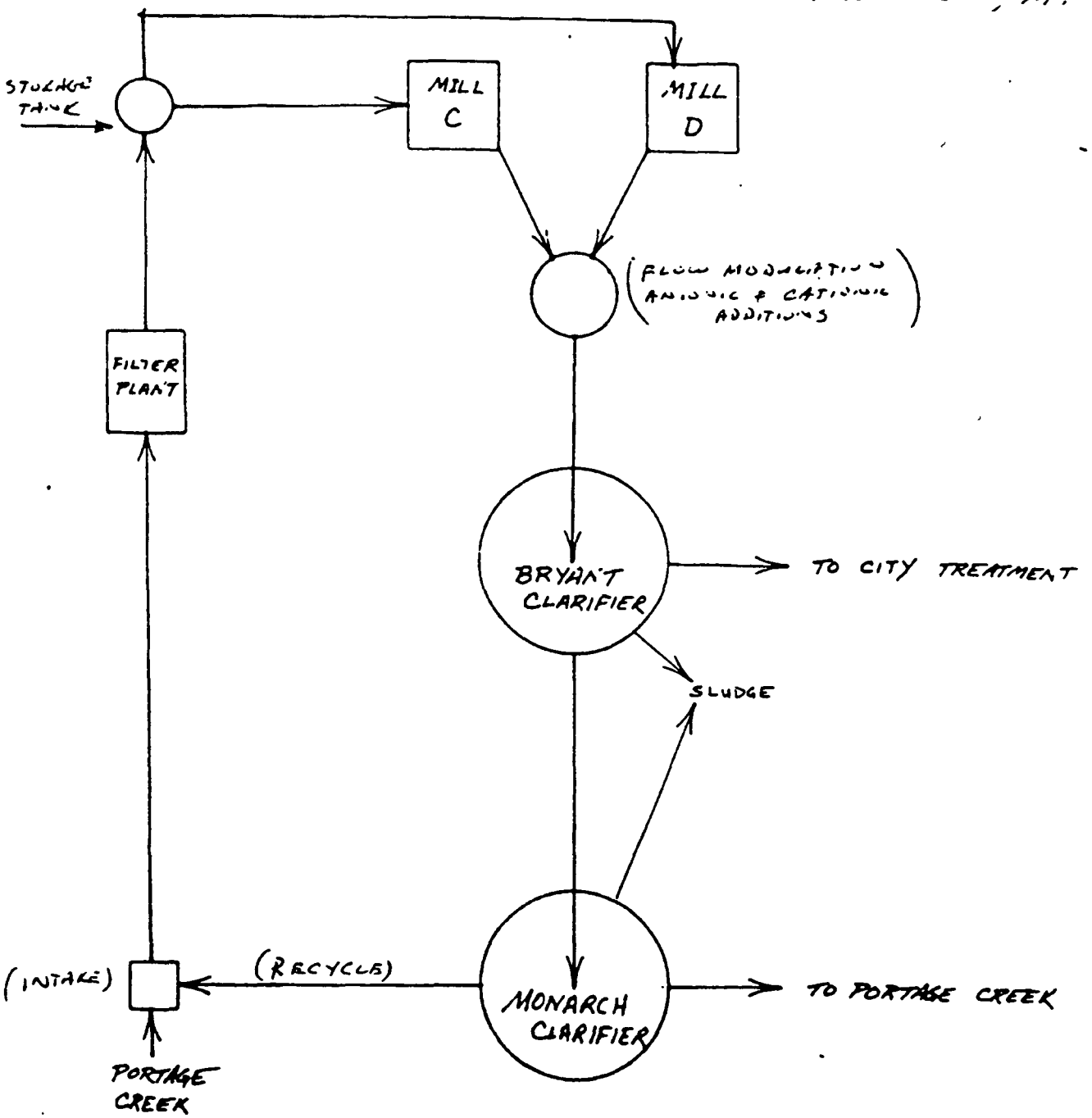
Allied Paper Incorporated
Kalamazoo Treatment Train



000060

December 1974
U.C. Stoeffler

ALLIED PAPER CO
BRYANT MILL
KALAMAZOO, MI



0005963

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

Bryant MILL

Requisition For Supplies

1st [illegible] Cashiers Ck.
698422
8/5/81

$2700.00

DATE 7-27-81

Purchasing -
See attached letter from Industrial Equipment dated 6-9-81. Reference offer to purchase used transformers for $1 per KVA. We have mine that I would like to get rid of as follows

Quantity	
3	200 KVA S/N 3766867, 3766865, 3766866
3	200 KVA S/N 4395273, 4395257, 4395268
3	500 KVA S/N 923088, 923087, 934566.

Attached are copies of certified PCB oil sample results on each respective transformer (less than 50 PPM) Please advise Jim Wagner he may pay for these and pick them up

~~W. O. NO.~~

ACCT. NO.

DELIVER TO

NOTIFY Jim Waldron

DEPARTMENT

Signed By R E Vickery

TO BE USED FOR Surplus junk transformers

CHARGE TO

Approved By

SA 037466

TRANSFORMERS

#'S 1-12 Out of Service

1	2300-440	1405972	5 KVA-3	Oil	West
2	440-120	2042569	5 KVA-1	Oil	G.E.
3	2300-230-120	25AL5242-8	25 KVA-1	Oil	A.C.
4	2300-230-120	25AL-5242-7	25 KVA-1	Oil	A.C.
5	2300-230-120	25AL5242-6	25 KVA-1	Oil	A.C.
6	2300-230-120	2621566	1.5 KVA-1	Oil	West
7	440-65-45	1738362	15 KVA-1	Oil	West
8	440-65-45	1738360	15 KVA-1	Oil	West
9	440-65-45	1738361	15 KVA-1	Oil	West
10	2400-460	6581387	10 KVA-1	Oil	West
11	2400-460	6581385	10 KVA-1	Oil	West
12	2400-460	6581386	10 KVA	Oil	West

Note 1 - One 25-1 Still in Service put on main transformer list. 6/1/88 RRE

Rev. 6/1/88
/deo

Bryant Mi _ Transformer Inspection - Monthly

Al Vickery

Revised 3/9/83
Revised 2/7/84
* Revised 3/26/84
** Revised 4/84

No.	Location	Serial #	KVA-Phase	Liquid Fill	Mfg.	Remarks: ppm	Bushing, sightglass, bottom valve, etc.
1	Cork Street Clarifier	N227413TETA **	500-3	Oil	GE	<10	
2	Cork Street Pump House	2948511	37½-1	Oil	GE	<10	
3	Cork Street Pump House	2948513	37½-1	Oil	GE	<10	
4	Cork Street Pump House	2953037	37½-1	Oil	GE	<10	
5	Filter Plant	4652923	333-1	Oil	W	<10	
6	Filter Plant	4652926	333-1	Oil	W	15	
7	Filter Plant	4658400	333-1	Oil	W	14	
8	W.Portage Creek	E686721	750-3	Oil	GE	See Note 1 <10	
17	Mill C #1 Sub	50L5229022	50-1	Oil	AC	<10	
18	Mill C #1 Sub	50L5229023	50-1	Oil	AC	<10	
19	Mill C #1 Sub	50L5229028	50-1	Oil	AC	13	
20	Mill C #1 Sub	1A5348.1	200-1	Oil	AC	<10	
21	Mill C #1 Sub	1A5348.2	200-1	Oil	AC	<10	
22	Mill C #1 Sub	3A3228.6	200-1	Oil	AC	<10	
23	Mill C #2 Sub	1709062 *	200-1	Oil	W	<10	
24	Mill C #2 Sub	1709061	200-1	Oil	W	26	
25	Mill C #2 Sub	1669063	200-1	Oil	W	<10	
26	Mill C #3 Sub	3772576	1000-3	Oil	W	<10	
27	Power Plt G	L247848	1000-3	Oil	GE	<10	
28	Power Plt G	L244426A	5000-3	Oil	GE	<10	
29	Mill D (Coater)	C168174	1000-3	Oil	GE	67	
31	Mill D, W. Port. Creek	3772574	1500-3	Oil	W	32	
32	Mill D, W Port. Creek	3A3228.4	200-1	Oil	AC	<10	
33	Mill D, W. Port. Creek	3A3228.5	200-1	Oil	AC	41	

* Serial Number corrected
** S/N Corrected 4/84

OUTSTANDING ITEMS: ELECT + PCB'S 23 FEB 84

I. MILL D - OLD ENGINE ROOM: (27 APR 83 MEMO)

- (3) SINGLE PHASE 200 KVA-AC TRANSFORMERS
* (2) SINGLE PHASE 37½ KVA-AC TRANSFORMERS
* (1) SINGLE PHASE 50 KVA KALMAN LIGHTING TRANSFORMER

- RELOCATE (3) 200KVA-AC'S.
* ELIMINATE (2) + (1) 37½ + 50 KVA'S

" TRANSFORMERS + SWITCH GEAR FOR #8 + #9 PM
480 VOLT, 3 PHASE - OUTSIDE OLD ENGINE ROOM
" ELIMINATE,

- INSTALL 3 PHASE 750 KVA (AVAILABLE) AT DIFFERENT LOCATION - NEED NEW 480 VOLT SWITCH GEAR

II MILL E: SINGLE PHASE TRANSFORMERS (12 OCT 83 MEMO)
· DISPOSE OF: (5) TRANSFORMERS
* (3) TRANSFORMERS HIGH PCB
* (?) BARRELS OF PCB TRANSFORMER OIL
* (?) BARRELS OF CAPACITORS (PCB)

III PCB MATERIALS IN STORAGE (8 NOV 83 MEMO)
21 OCT 83 (6) DRUMS PCB OIL
(10) DRUMS PCB CAPACITORS

SCRAP (8) TRANSFORMERS
(3) TRANSFORMERS DRAINED (PCB OIL)
(5) TRANSFORMERS TO DRAINED

ALSO · DISPOSE PCB'S IN STORAGE
· REMOVE (3) 333 KVA TRANSFORMERS OVER CRUNK O.E.R
· REMOVE ELECT LIGHTING O.E.R, + TRANSFORMERS
· REMOVE 480 V BUS OER (1500 KVA TRANSFORMER), G.E 480V SWITCH GEAR, OLD OIL SWITCHING + BUS.
· DISPOSE OF TRANSFORMER MILL E SUB

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Jim Waldron

FROM: Al Vickery

11

OFFICE:

OFFICE:

SUBJECT: Single Phase Transformers

DATE: October 12, 1983

I recommend we dispose of all the single phase transformers in the Mill E substation. These are as follows:

MANUFACTURE	SERIAL NUMBER	KVA-PHASE	LIQUID	PCB/PRM	DATE
W	5896683	25-1	Oil	<10	
W	5893814	25-1	Oil	<10	
GE	3343093	37½-1	Oil	13	7/9/82
W	3010456	200-1	Oil	25	7/9/82
W	3010458	200-1	Oil	<10	
W	3010461	200-1	Oil	16	8/2/82
W	3110153	333-1	Oil	<10	
W	3110154	333-1	Oil	<10	

The oil from S/N 3343094, 3010456 and 3010461 should be drained and placed in DOT approved barrels for proper EPA disposal. These three transformers should be "stored for PCB disposal".

When the DOT barrels are received (for the capacitors) give me a count of the:

1) Number of barrels of PCB contaminated oil
2) Number of barrels of PCB capacitors
3) And the three above transformers.

I will get pricing on shipping and disposal.

/kmj

Copy to D Eaton.
RW

7 Nov 83 - asked Al for complete body etc
7 Nov - [illegible]

SA 037853

SA00037853

26	Mill C #3 Sub	3772576	1000-3	Oil	W
27	Power Plt G	L247848	1000-3	Oil	GE
28	Power Plt G	L244426A	5000-3	Oil	GE
29	Mill D (Coater)	C168174	1000-3	Oil	GE
35	Mill D	L244426B	5000-3	Oil	GE
37	Mill D, E #7 PM Sub	B978489	1000-3	Oil	GE
38	Office Parking Lot	C861660	750-3	Pyranol	GE
42	Mill D-DA	M154560B	2000-3	Type I Oil	GE
43	Mill D-DB	M154560A	2000-3	Type I Oil	GE
44	PPG	2951483	25-1	Oil	GE

* Serial Number corrected

NOTE 1 - Removed from service 1983 and relocated to west side of Mill D as Mill Spare, AEV - See Note #3.

NOTE 2 - Items removed from list have been disposed of. AEV

NOTE 3 - Out of service Transformer GE #E686721 & 360 gals. of oil @ 10 ppm PCBs disposed of on 1/14/87.

NOTE 4 - New Transformer Installed 11/25/86. GE kept old transformer

NOTE 5 - Seven transformers removed from Mill Sight (6/1/88-RRE)
1) 1500-3
3) 200-1
2) 37.5-1
1) 50-1
Two new 2000-3 Transformers installed
One 25-1 Transformer added to list

Rev. 6/1/88-RRE

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

Dick E.

TO: Bernie Rasmusson

FROM: Al Vickery

OFFICE:

OFFICE:

SUBJECT: Surplus Transformers

DATE: January 3, 1983

Attached is a copy of the nameplate for two used surplus transformers which we have stored on the West side of Bryant Mill. These are useless to Allied. These are described as follows:

Quantity 2 (two) new 1968
Allis Chalmers three phase 60 cycle 55°C Rise
Class OA/FA, 1500/1725 KVA
4800 Volts primary 75 KV BIL
2400 Volts secondary 60 KV BIL
5% Impedence at 1500 KVA
Sealed (8 psi positive-4 psi negative)
Total Weight 12,200 lb. (458 gal. oil 3435#)
also 1680/1932 KVA @ 65°C Rise
Pri Taps 5040, 4920, 4800, 4680, 4560 delta-delta
S/N 4767186 and 4767187

Also attached is a copy of the oil analysis which varifies less than 10 ppm PCB.

Please get rid of these units for Allied. If you cannot sell for (approx. $1 per KVA) then sell for junk - but get them off our premises.

/kj

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

RECEIVED
MAR 3 1983
R. R. EATON

TO: Distribution

FROM: A. E. Vickery

OFFICE:

OFFICE:

SUBJECT: PCB Disposal - Engineering File B-1322
MR-3018

DATE: March 2, 1983

Purchase order No. 51908 was issued to Ensco Inc. to pick up, transport and dispose of the following items:

1-750 KVA Westinghouse Transformer S/N 6539075
1-75 KVA G. E. Transformer S/N 5499217
1-50 KVAR Capicator # 51F403 (37F591G11)
1- Barrel rags.
1- Barrel (5 gals lab PCB)
36- Barrels of PCB contaminated mineral oil (less than 500 ppm)

Ensco Inc. is furnishing two manifests. One, a straight hazardous waste manifest for the two transformers which will go to Nashville, Tennessee. The other items will be listed on an Arkansas hazardous waste manifest. I (Allied will furnish the Michigan Waste Disposal Manifest (with all of these items listed). These manifests will be given to traffic for preparation.

The Ensco truck will be here Wednesday about 8 or 9 A.M. Allied will be responsible for loading. The 750 KVA transformer is being removed from Mill D basement today (3/2/83) and will be located next to the substation on the West side of Portage Creek. Jim Waldron should move the 75 KVA transformer, the 50 KVAR capacitor, barrel of rags and 5 gals. of lab PCB from Mill C PCB storage area to the West side to be near the 750 KVA transformer. This will make it simpler and straight forward to load all of the items in as short a time as possible.

/kmj

Distribution

T. Flanagan
D. Eaton
B. Rasmusson
T. Cadwell
K. Sweet
P. Hagard
J. Waldron
D. Falvey
A. Vickery
L. Stoeffler
D. C. Kirk
G. Brooks
File

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

PCB

TO: E. J. Gilman

FROM: A. Vickery

OFFICE:

OFFICE:

SUBJECT: Mill A - GE 750KVA Transformer
S/N C862796

DATE: March 30, 1978

You may recall I discussed purchasing the subject transformer from Ward Harrison. After our discussion I wrote Ward advising him that we were not interested in purchasing the transformer and also we could not permit him to store it temporarily on the Bryant Mill property.

This transformer was originally purchased by Allied in the late 1950s and installed in Mill A. It was included in the sale of Mill A to American Pulp (1971) (later to become known as Upgrade). Several years ago Ward Harrison acquired it with other equipment from Upgrade. At that time Ward had talked to me about purchasing this equipment I indicated we could be interested in purchasing the transformer for a reasonable price as we had several potential capital projects in the offing where it could be used. In May 1977 when I filled out the PCB Act Survey Questionnaire pursuant to Michigan Public Act No. 60 which went into effect April 1, 1977, I included the gallonage (pounds) of three transformers containing PCB. The Mill A (subject) unit was one of the three included. I reported 1038 gallons under the Bryant Mill facility No. 390004. The Mill A transformer contained 340 gallons. When I submitted the PIPP supplement covering PCB for the Bryant Mill (PIPP #23313) in March 1978 I reported only 698 gallons of PCB contained in two transformers. My intention was to advise the State of the difference and at that time I had hoped to report the transformer location. Yesterday, 3/29/78, I became aware that the transformer is no longer located in Mill A. In talking to Ward Harrison this morning I find that he did not remove it and does not know of its whereabouts. I called Jim Halpin of Upgrade today and he does not know the location of the transformer.

I talked to John Feeley today and attempted to explain this situation. His recommendation was to advise the DNR that the earlier reporting was in error. Should we write the DNR and go on record?

br

cc: J.Feeley
U.G.Stoeffler

000597

No.	LOCATION	SERIAL #	KVA-PHASE	LIQUID FILL	MFG.	Remarks: Bushing, Sightglass, etc.
~~34~~	~~Mill D, W Port. Greek~~	~~2A2695~~	~~200-1~~	~~Oil~~	AC	
35	Mill D, ~~W. Port. Greek~~	L244426B	5000-3	Oil	GE	
37	Mill D, E #7 PM Sub	B978489	1000-3	Oil	GE	
38	Office Parking Lot	C861660	750-3	Pyranol	GE	
~~39~~	~~Old P.P.G.~~	~~3556024~~	~~37.5-1~~	~~Oil~~	~~AC~~	Removed
~~40~~	~~Old P.P.G.~~	~~3557459~~	~~37.5-1~~	~~Oil~~	~~AC~~	
~~41~~	~~Old P.P.G.~~	~~A99455~~	~~50-1~~	~~Oil~~	Kuhlman	
42	MILL D-DA	M154560B	2000-3	TYPE I OIL	GE	
43	MILL D-DB	M154560A	2000-3	TYPE I OIL	GE	
44	PPG	2951483	25-1	OIL	GE	

* Serial Number corrected
** Serial Number corrected 4/84

NOTE 1 - Removed from service 1983 and relocated to West side of Mill D as Mill spare. AEV See Note #3.

NOTE 2 - Items removed from list have been disposed of. AEV

NOTE 3 - Out of service Transformers GE #E686721 & 360 gallons of oil @ <10ppm PCB's disposed of on 1-14-87.

NOTE 4 - New Transformer Installed 11-25-86. GE kept old transformer.

NOTES - • SEVEN TRANSFORMERS REMOVED FROM MILL SIGHT (1) 1500-3; (3) 200-1; (3) 37.5-1 and (1) 50-1; • TWO NEW 2000-3 TRANSFORMERS INSTALLED. • ONE 25-1 TRANSFORMER ADDED TO LIST } 6-1-87 REC

Bryant Mill Transformer Inspection - Monthly

Al Vickery
Revised 3/9/83
Revised 2/7/84
*Revised 3/26/84
**Revised 4/84
Revised 9/87

NO.	LOCATION	SERIAL #	KVA-PHASE	LIQUID FILL	MFG.	REMARKS: Bushing, Sightglass, etc.
1	Cork Street Clarifier	P171033	300-1	Oil	GE - Note 4	
2	Cork Street Pump House	2948511	37½-1	Oil	GE	
3	Cork Street Pump House	2948513	37½-1	Oil	GE	
4	Cork Street Pump House	2953037	37½-1	Oil	GE	
5	Filter Plant	4652923	333-1	Oil	W	
6	Filter Plant	4652926	333-1	Oil	W	
7	Filter Plant	4658400	333-1	Oil	W	
17	Mill C #1 Sub	50L5229022	50-1	Oil	AC	
18	Mill C #1 Sub	50L5229023	50-1	Oil	AC	
19	Mill C #1 Sub	50L5229028	50-1	Oil	AC	
20	Mill C #1 Sub	1A5348.1	200-1	Oil	AC	
21	Mill C #1 Sub	1A5348.2	200-1	Oil	AC	
22	Mill C #1 Sub	3A3228.6	200-1	OIl	AC	
23	Mill C #2 Sub	1709062 *	200-1	Oil	W	
24	Mill C #2 Sub	1709061	200-1	Oil	W	
25	Mill C #2 Sub	1669063	200-1	Oil	W	
26	Mill C #3 Sub	3772576	1000-3	Oil	W	
27	Power Plt G	L247848	1000-3	Oil	GE	
28	Power Plt G	L244426A	5000-3	Oil	GE	
29	Mill D (Coater)	C168174	1000-3	Oil	GE	
~~31~~	~~Mill D, W. Port. Creek~~	~~3772574~~	~~1500-3~~	~~Oil~~	~~W~~	
~~32~~	~~Mill D, W~~ Port. Creek	~~3A3228.4~~	~~200-1~~	~~Oil~~	~~AC~~	
~~33~~	~~Mill D, W. Port. Creek~~	~~3A3228.5~~	~~200-1~~	~~Oil~~	~~AC~~	

001677

TABLE 1. ALLIED PAPER INC. TRANSFORMERS
(In Order Observed)

Location	Manufacturer	Serial Number	Gallon Capacity	Sample Number/Type	Photo	Oil Type	Observations
(1) Bryant Office Building	G.E. Pyranol	C-66 K60	340	-	-	PCB	No leaks - missing nameplate has PCB M_L label.
(2) Number 2 Substation	Westinghouse	1709002	154	-	x	-	Leak on side
(3) Number 2 Substation	Westinghouse	1669063	154	1/Soil	x		Leak to ground
(4) Number 2 Substation	Westinghouse	1709061	154	-	x	-	Leak on side
Storage by Mill D Substation - 1500 kva (all out of service) - outside on concrete slab							
(5) Storage by Mill D Substation	Kuhlman	934566	320	2/Oil	x	-	Leak to concrete slab/ground below
(6) Storage by Mill D Substation	Kuhlman	923087	320	-	x	-	Leak to concrete slab
(7) Storage by Mill D Substation	Kuhlman	923088	320	3+4/Oil + Soil	x	-	Significant leak to concrete slab/ground
(8) Storage by Mill D Substation	G.E.	2845676	150	-	x	N.O.	Leak on side
(9) Storage by Mill D Substation	G.E.	2845678	150	-	x	N.O.	No leaks
(10) Storage by Mill D Substation	G.E.	2845675	160	-	x	N.O.	No leaks
(11) Mill D Substation	Westinghouse	3772574	740	5/Soil	x	N.O.	Leak to concrete slab and and ground below
(12) Outside Mill D	-	L24442613	520	-	-	N.O.	No leaks - 6 months in use
Storage by Mill D (all out of service) - outside							
(13) Storage by Mill D	Allis Chalmers	4767107	450	6/Soil	x	N.O.	Leaks to soil - on wood beams
(14) Storage by Mill D	Allis Chalmers	4767106	450	-	x	N.O.	No leaks - on wood beams
(15) Storage by Mill D	Westinghouse	3772576	470	-	x	N.O.	Leaks on side - on wood beams
(16) Storage by Mill D	G.E.	B278429	425	7/Soil	x	N.O.	No leaks to soil, on metal beams
(17) Mill D, Under Machine #7	Westinghouse	6539075	350	-	-	PCB	No leaks - has M_L PCB label

044808 HS

TABLE 1. ALLIED PAPER INC. TRANSFORMERS (CONTINUED)
(In Order Observed)

Location	Manufacturer	Serial Number	Gallon Capacity	Sample Number/Type	Photo	Oil Type	Observations
Old Engine Room - outside with roof - on concrete slab							
(18)Old Engine Room	Allis Chalmers	3A-3220.5	(200 kva)	-	-	M.O.	Leaks to slab below
(19)Old Engine Room	Allis Chalmers	2A-2695	(200 kva)	-	-	M.O.	Leaks to slab below
(20)Old Engine Room	Allis Chalmers	3A-3228.4	(200 kva)	8/Oil	-	M.O.	Leaks to slab below
(21-23)Old Engine Room	?(3)	?	30,30,50	-	-	M.O.	No significant leaks
(24)Mill D - Blade Coater	G.E.	C-168174	425	-	-	M.O.	No leaks
Mill C - Welding Shop Substation - Puddles of rain water and poor visability made it difficult to determine leaks to ground - outside							
(25)Mill C - Welding Shop	Allis Chalmers	1A-5348.1	(200 kva)	-	-	-	Leak at base
(26)Mill C - Welding Shop	Allis Chalmers	3A-3228.6	(200 kva)	-	-	-	No leaks
(27)Mill C - Welding Shop	Allis Chalmers	1A-5348.2	(200 kva)	-	-	-	No leaks
(28)Mill C - Welding Shop	Allis Chalmers	50-LS-229023	40 gal.	-	-	-	No leaks
(29)Mill C - Welding Shop	Allis Chalmers	50 LS-229022	40 gal.	-	-	-	Leak at base
(30)Mill C - Welding Shop	Allis Chalmers	50-LS-229028	40 gal.	-	-	-	Leak at base
Mill C - Starch Kitchen - outside - concrete pad							
(31)Mill C - Starch Kitchen	G.E.	3766867	(200 kva)	-	-	M.O.	Leak on sides
(32)Mill C - Starch Kitchen	G.E.	3766865	(200 kva)	-	-	M.O.	Leak to ground (concrete)
(33)Mill C - Starch Kitchen	G.E.	3766866	(200 kva)	-	-	M.O.	Leak on sides
(34)Mill C - Starch Kitchen	Westinghouse	4395268	(200 kva)	-	-	-	Leak on sides
(35)Mill C - Starch Kitchen	Westinghouse	4395273	(200 kva)	9/Oil	-	-	Leak to ground (concrete)
(36)Mill C - Starch Kitchen	Westinghouse	4395257	(200 kva)	-	-	-	Leak to ground (concrete)

5A 044809

TABLE 2. PCB SAMPLE RESULTS - ALLIED PAPER INC.

Sample Number	Description	PCB Concentation (ppm)	Aroclor Type
1	Sediment below Westinghouse transformer 1669063	<1	--
2	Oil from Kuhlman transformer 934566 - In storage	11	1254
3	Oil from Kuhlman transformer 923088 - In storage	9	1254
4	Sediment below Kuhlman transformer 923088 - In storage	<1	--
5	Sediment below Westinghouse Transformer 3772574	<1	--
6	Sediment below Allis Chalmers transformer 4767107 - In storage	<1	--
7	Sediment below General Electric transformer 8978489 - In storage	140	Mix
8	Transformer oil from Allis Chalmers 3A-3228.4	280	1260
9	Transformer oil from Westinghouse transformer 4395273	12	1254
10	Hydraulic - Machine No. 5 Table Lift	<1	--
11	Hydraulic - Machine No. 5 Swim Roll	<1	--
12	Hydraulic - Machine No. 5 Size Press	<1	--
13	Hydraulic - Machine No. 6 Table Lift	<1	--
14	Hydraulic Mill D Blade Coater - Swim Stack	<1	--
15	Hydraulic Mill D Fountain Head	<1	--
[illegible]	[illegible]	<1	--

from sample [illegible] or drain [illegible]

SA 044810

THE KAR LABORATORY
219 PEEKSTOK ROAD
KALAMAZOO, MICHIGAN 49001
TELEPHONE (616) 381-9666

CERTIFICATE OF ANALYSIS

Allied Paper Incorporated
Bryant Division
P.O. Box 2528
Kalamazoo, MI 49003

Date: September 7, 1982
Laboratory code: K-9028-3

Attention: Mr. Al Vickory

Re: Polychlorinated Biphenyl analysis

This will certify that a sample of Transformer oil from Transformer Serial No. B978489, 1000 KVA was collected by the Kar Laboratory from the Bryant Mill Division of the Allied Paper Company, Kalamazoo, MI on August 30, 1982 . It was analyzed by accepted procedures using electron capture gas chromatography. It was evaluated using an Aroclor 1254 Standard.

Results:

Parts per million PCB found: <10

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat
Director

JNK:cr

THE KAR LABORATORY
219 PEEKSTOK ROAD
KALAMAZOO, MICHIGAN 49001
TELEPHONE (616) 381-9666

CERTIFICATE OF ANALYSIS

Allied Paper Incorporated
Bryant Division
P.O. Box 2528
Kalamazoo, MI 49003

Date: September 7, 1982
Laboratory code: K-9028-4

Attention: Mr. Al Vickory

Re: Polychlorinated Biphenyl analysis

This will certify that a sample of Transformer oil from Transformer Serial No. 3A-3228.4, 200 KVA was collected by the Kar Laboratory from the Bryant Mill Division of the Allied Paper Company, Kalamazoo, MI on August 30, 1982 . It was analyzed by accepted procedures using electron capture gas chromatography. It was evaluated using an Aroclor 1254 Standard.

Results:

Parts per million PCB found: <10

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat
Director

JNK:cr

THE KAR LABORATORY
219 PEEKSTOK ROAD
KALAMAZOO, MICHIGAN 49001
TELEPHONE (616) 381-9866

CERTIFICATE OF ANALYSIS

Allied Paper Incorporated
Bryant Division
P.O. Box 2528
Kalamazoo, MI 49003

September 7, 1982
Laboratory code: K-9028-S

Attention: Mr. Al Vickory

Re: Polychlorinated Biphenyl analysis

This will certify that a sample of soil under outlet of Transformer Serial No. 3A-3228.4, KVA 200 was collected by the Kar Laboratory from the Bryant Mill Division of the Allied Paper Company, Kalamazoo, MI on August 30, 1982. It was analyzed by accepted procedures using electron capture gas chromatography. It was evaluated using an Aroclor 1254 Standard.

Results:

Parts per million PCB found: <10

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat
Director

JNK:cr

EPA United States Environmental Protection Agency

RECEIPT FOR SAMPLES AND DOCUMENTS

Name of Firm: Allied Paper Corp.

Firm Address: 2030 Portage St. Kalamazoo, Mich

Inspector Name: Paul Schiffman

Inspector Address: Versar Inc. 6621 Electronic Dr Spfld Va 22157

Name of Individual: U.G. Stoeffler

Title: Manager - Process Development

Date Collected	Duplicate Samples Requested and Received	Sample Number
5-12-81	( ) Yes (X) No	01-16

Sampled June 24th 1981

Transformer

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Toxic Substances Control Act.

Receipt for the document(s) and/or sample(s) described is hereby acknowledged:

< 10 ppm - 01 - Soil - Number 2 Substation - Westinghouse Transf # 1669063
< 10 ppm - 02 - oil from transf - in storage by Mill D subst. Kuhlmann # 934566
< 10 ppm - 03 - oil " " " " " " " " 923087
< 10 ppm - 04 - soil below " on slab " " " " " 923088
40 ppm - 05 - soil below slab - Mill D subst trans - Westinghouse - 740 gal 3772574 inner
< 10 ppm - 06 - soil - below trans in storage - outside Mill D - Allis Chalmers - 4767187 458 gallon
< 10 ppm - 07 - soil " " " " " " " - G.E. B975489 425 gal
76 ppm - 08 - oil from transf. Old Engine Room A.C. outdoor type - 3A 3228.4
13 ppm - 09 - oil " " - Mill C Starch Kitchen - Westinghouse Hipersil 4595273.
10 - Hydraulic Oil Mill C - Table Lift #5 -
11 - " " - Swim Roll #5
12 - ~~Size Press~~ " - Size Press #5
13 - Hydraulic Oil " Table Lift #6
14 " Mill D Blade Coater Swim Stack
15 " " Foundrin Hands Blade Coater
16 Waste Oil

Documents
1) Dubois Chemical - Hydraulic Oil (MAPO-15) Invoice - 1-26-81
2) PCB Transformer & Capacitor Inventory - 4/23/81
3) Rowan & Blair Transformer testing records - 14 sheets

Signature of Inspector	Signature of Owner, Operator, or Agent
[signature]	U.G. Stoeffler 5/12/81
Title: Compliance Auditor	Title: Mgr. Process Div.

Bryant Mill Transformer Inspection - Monthly

Al Vickery
Revised 3/9/83
Revised 2/7/84
*Revised 3/26/84
**Revised 4/84
Revised 9/87

NO.	LOCATION	SERIAL #	KVA-PHASE	PCB's PPM 3/84	LIQUID FILL	PCB's PPM 9/87	MFG.	REMARKS: Bushing, Sightglass, etc.
1	Cork Street Clarifier	P171033	300-1	<10	Oil	<5	GE - Note 4	
2	Cork Street Pump House	2948511	37½-1	<10	Oil	<5	GE	
3	Cork Street Pump House	2948513	37½-1	<10	Oil	<5	GE	
4	Cork Street Pump House	2953037	37½-1	<10	Oil	<5	GE	
5	Filter Plant	4652923	333-1	<10	Oil	9	W	
6	Filter Plant	4652926	333-1	15	Oil	16	W	
7	Filter Plant	4658400	333-1	14	Oil	11	W	
17	Mill C #1 Sub	50L5229022	50-1	<10	Oil	<5	AC	
18	Mill C #1 Sub	50L5229023	50-1	<10	Oil	<5	AC	
19	Mill C #1 Sub	50L5229028	50-1	13	Oil	<5	AC	
20	Mill C #1 Sub	1A5348.1	200-1	<10	Oil	<5	AC	
21	Mill C #1 Sub	1A5348.2	200-1	<10	Oil	<5	AC	
22	Mill C #1 Sub	3A3228.6	200-1	<10	Oil	<5	AC	
23	Mill C #2 Sub	1709062 *	200-1	<10	Oil	<5	W	
24	Mill C #2 Sub	1709061	200-1	26	Oil	17	W	
25	Mill C #2 Sub	1669063	200-1	<10	Oil	<5	W	
26	Mill C #3 Sub	3772576	1000-3	<10	Oil	10	W	
27	Power Plt G	L247848	1000-3	<10	Oil	10	GE	
28	Power Plt G	L244426A	5000-3	<10	Oil	<5	GE	
29	Mill D (Coater)	C168174	1000-3	67	Oil	110	GE	
31	Mill D, W. Port. Creek	3772574	1500-3	32	Oil	48/64?	W	
32	Mill D, W Port. Creek	3A3228.4	200-1	<10	Oil	9	AC	
33	Mill D, W. Port. Creek	3A3228.5	200-1	41	Oil	43	AC	

NO.	LOCATION	SERIAL #	KVA-PHASE	PCB 10 PPM LIQUID 3/84 FILL 9/87	MFG.	Remarks: Bushing, Sightglass, etc.
34	Mill D, W Port. Creek	2A2695	200-1	37 Oil 43	AC	
35	Mill D, W. Port. Creek	L244426B	5000-3	<10 Oil <5	GE	
37	Mill D, E #7 PM Sub	B978489	1000-3	<10 Oil <5	GE	
38	Office Parking Lot	C861660	750-3	Pyranol	GE	
39	Old P.P.G.	3556024	37.5-1	Oil 5	AC	
40	Old P.P.G.	3557459	37.5-1	Oil <5	AC	
41	Old P.P.G.	A99455	50-1	Oil <5	Kuhlman	

* Serial Number corrected
** Serial Number corrected 4/84

NOTE 1 - Removed from service 1983 and relocated to West side of Mill D as Mill spare. AEV See Note #3.

NOTE 2 - Items removed from list have been disposed of. AEV

NOTE 3 - Out of service Transformers GE #E686721 & 360 gallons of oil @ <10ppm PCB's disposed of on 1-14-87.

NOTE 4 - New Transformer Installed 11-25-86. GE kept old transformer.

February 24, 1972

Bureau of Water Management
Stevens T. Mason Building
Michigan Department of Natural Resources
Water Resources Commission
Lansing, Michigan 48926

Attention: Mr. Gary Guenther

Dear Mr. Guenther,

We are enclosing the remittance of surveillance fee for 1972 in the amount of $2,779.00 including the top portion of the site number 999 form

We request a credit on this surveillance fee based on the fact that under the strength factor calculation, number 5 ~~category,~~ "critical waste constituents to be monitored", we were given a value of "1" for PCB. In discussing the reason for this critical waste constituent assigned to us with Mr. Kilmer, he said it was because of our deinking plant at our Bryant Division. On December 3, 1971, we closed down our deinking mill at our Bryant Division, and therefore request the removal of this critical waste constituent from the strength factor calculation.

Mr. Kilmer also mentioned that hydraulic fluids and transformer coolants as possible sources of PCB contamination. Our Engineering Department has made a thorough study of the products we used on these two applications. None of our hydraulic fluids contain PCB and the only transformer coolant containing PCB is no hazard.

With this correction, our total surveillance fee would be $2,112.00. We request that the overbalance of $667.00 be credited to our surveillanc fee of 1973.

Yours very truly,

ALLIED PAPER INCORPORATED

E.J. Gilman, Vice President of Manufacturing

cc: U.G. Stoeffler

EJG:bn

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

PAPER MILLS DIVISION KALAMAZOO, MICHIGAN 49003 (616) 345 7131

July 15, 1981

Mr. J. Kevin Chisholm, Compliance Auditor
Versar Inc.
6621 Electronic Drive
Springfield, Virginia 22151

Dear Mr. Chisholm:

As mentioned in my letter of May 22, Allied Paper found an oil recycling company. C. Stoddard & Sons Inc. picked up 600 gallons from us on July 14. Attached is a copy of the Waste Disposal Manifest which confirms this disposal of our hydraulic oil.

Also attached to this letter is a copy of the letter from Interlube Corporation, our supplier of hydraulic oil, stating that the product does not contain any PCB.

Yours very truly,

U. G. Stoeffler
Manager, Process Development

br

cc: T.Flanagan
P.Hagard
D.C.Kirk,Jr.
M.Smith
K.Sweet
A.Watson

storage. Only capacitors were stored in this area (See Attachment No. 1 - Monarch Monthly PCB Capacitor Inspection Report).

The PCB-storage area measured approximately 12 x 12 feet, had an eight-inch concrete curb, was protected from rainfall, and was marked with the Mr. PCB label (See Attachment B, Photographs). There was some water leaking into the storage area.

The inspection team was informed that no transformers or capacitors have been disposed of in recent years.

Six large, high-voltage capacitors in the Mill D Substation were stored on the ground without protection from rainfall. The inspection team was informed the capacitors would be used at the water filter plant. Each capacitor was marked with an Mr. PCB label and none were leaking (See PCB Inventory in Attachment No. 1 for PCB capacitor details).

Allied Paper Inc. has 17 separate units of equipment containing hydraulic fluid. The inspection team was informed that no PCB fluids have been used. MPO-15 is now being used in all hydraulic units according to company personnel (See Purchase Order, Attachment No. 2). Samples were taken from six of the 17 hydraulic units, and analysis showed no detectable PCB contamination in these samples. The total volume of fluid in all units is 572 gallons (See Table 2 for sampling results and Table 3 for details of hydraulic units).

At the time of the inspection, there were six barrels of waste oil in Mill D, and two or three barrels in Mill C. Sample 16 was taken from one of the Mill D barrels (See Table 1). Analysis showed no detectable PCB contamination in this sample.

The inspectors were informed that waste lubrication and hydraulic oils are stored in barrels before being collected for reuse. Mr. Stoeffler later provided a copy of a record indicating the waste oil collection company name (See Attachment No. 4).

At the time of the inspection, the only official PCB record Allied Paper Inc. disclosed to the inspectors was the Bryant Monthly PCB Capacitor and Transformer Inspection Report, and the Monarch Monthly PCB Capacitor Inspection Report (See Attachment No. 1). The Bryant Monthly Transformer

Mr. Vickery and the inspection team proceeded to inspect transformers and capacitors in the plant in the following order: Mill C Beater Room (five large, high-voltage, General Electric Pyranol capacitors, which were not leaking and had M_L PCB labels); PCB Storage Area (capacitors only); Number 2 Substation (See Table 1, transformers 2,3, and 4); storage area by Mill D 1500 kva Substation (transformers 5-10); and Mill D 1500 kva Substation (transformer 11, twenty-four large, high-voltage capacitors which had M_L PCB labels and were not leaking, and six large, high-voltage capacitors stored for reuse at the water filter plant). Mr. Vickery left the inspection team at this time. He informed the inspection team that he would have an employee show the inspectors any other transformers or capacitors upon request. He also stated that the inspection team could proceed without escort to inspect other transformers (12-16). Mr. Mike Brown, Electrician, then escorted the inspectors to Mill D, where the Westinghouse Inertean PCB transformer was located (17). There were also four large, high-voltage PCB capacitors above the transformer which were marked with M_L PCB labels, and were not leaking. Mr. Brown and the inspection team then proceeded to the Old Engine Room where six transformers were in use on a concrete slab with a roof and wall on one side (transformers 18-23). Mr. Brown and the inspectors then visited the Mill D Blade Coater Transformer (24), the Mill C Welding Shop Substation (transformers 25-30), and the Mill C Starch Kitchen, outside the substation (transformers 31-36).

The inspection team met again with Mr. Les Stoeffler. He introduced inspectors to Per Hagard, Maintenance Superintendent. Mr. Hagard stated that no PCB hydraulic fluids (Pydrauls, etc.) had been used to his knowledge in his 16 years at the plant. He said that at present all machines use NPO-15 from Dubois Chemical Company of Kalamazoo. Messrs. Stoeffler and Haggard, along with the inspectors, discussed the hydraulic units at the plant (Table 3). Inspection and sampling was conducted as listed in Table 3.

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION
P. O. BOX 2528 KALAMAZOO, MICHIGAN 49003

TOM FLANAGAN
VICE PRESIDENT
MANUFACTURING

(616) 345-7131

September 2, 1981

Mr. Duane W. Marshall
Regulatory Affairs Program Manager
NCASI
260 Madison Avenue
New York, N.Y. 10016

Dear Duane:

Attached you will find the information of PCB analysis and related topics which you requested in your letter of July 31, 1981.

We don't find any record of response to the August 1980 survey to which you referred. Trust this present report will help toward achieving beneficial regulation.

Very truly yours,

Thomas E. Flanagan

TEF:pas
cc: D. Kirk
A. Vickery

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NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT, INC.

Pulp and Paper Industry Owned PCB Transformer and Capacitor Survey

I INTRODUCTION

This survey is being carried out in response to pending regulatory initiatives directed at the continued use of transformers and capacitors containing PCB's. The data requested should be developed only for transformers and capacitors that are mill owned, not on-site equipment owned by electric utility companies. The information received will be analyzed to determine:

- Whether continued use of transformers and capacitors containing or contaminated with PCB's pose a risk to the environment by virtue of a) the frequency with which such equipment is observed to leak fluid and b) the extent to which equipment location and/or containment measures would preclude release to surface waters, groundwater, and/or land surface.

- The consequences to the forest products industry of a mandated phase out of PCB-contaminated or PCB-containing transformers and capacitors when considering (a) the numbers of units in service, (b) equipment size, and (c) anticipated life beyond hypothetical phase out periods of 2, 5, 10 and 20 years.

- Whether the 50-499 ppm PCB concentration range previously used to describe PCB-contaminated transformers properly reflects actual experience where transformer fluids have exhibited "contamination."

It is requested that the survey form be completed and returned by September 1. Responses will be welcome through September 15. The usual confidentiality protection will be given to technical information submitted to NCASI.

If any questions arise in completion of this survey, please direct them to Duane W. Marshall, NCASI Regulatory Affairs Program Manager or Willliam Gillespie at 212-532-9435 or our address at 260 Madison Ave, New York, N.Y. 10016.

II MILL IDENTIFICATION

Mill Name Allied Paper Inc. Location Kalamazoo

Person to Contact for Additional Information Tom Flanagan

Location 2030 Portage Street, Kalamazoo, MI 49003

Telephone No. 616-345-7131

III NUMBERS OF TRANSFORMERS AND CAPACITORS, PROTECTIVE MEASURES TAKEN TO CONTAIN PCB RELEASES AND PATHWAYS FOR PCB RELEASE TO THE ENVIRONMENT

The information solicited in Table 1 will be used to identify the total number of transformers and large capacitors containing dielectric fluid on a plant by plant basis in the primary manufacturing sector of the industry. Respondents are also asked to distinguish between units known to contain (a) Askarels, (b) PCB fluids, (c) contaminated fluid and (d) non-contaminated fluid, all as defined below.

The information requested also calls for a determination of the manner in which dielectric fluids leaking from electrical equipment would enter the environment in the absence of secondary containment measures, both as defined below. (Leaking of fluid onto the concrete floor of a manufacturing facility would not be considered a release into the environment if the fluid was entirely contained in the facility. However, opportunity for fluid seepage into the ground adjoining or within the building, or discharge through a floor drain would be considered environmental release.)

DEFINITIONS:

Transformers means only those transformers which use a liquid dielectric fluid. Air cooled types are not to be counted if they contain no liquid dielectric.

kVA means kilo volt amperes.

Large Capacitors means only those capacitors which contain more than 3 lb. (approximately 1 quart) of dielectric fluid.

Protective Vault or Vault means an enclosing structure designed to provide for plant safety protection or equipment protection. Such a structure would generally be of substantial construction (steel or concrete) and would generally be totally enclosed, fireproof, and (a) in the case of Askarel filled units designed to contain any leaked fluid, or (b) in the case of units containing mineral oil, designed to divert oil contaminated water resulting from extinguishing fires to an exterior tank capable of containing the flow.

Process Building means any structure used to enclose any part of the manufacturing process including but not limited to (a) raw material storage, (b) manufacturing equipment vessels or processes, (c) intermediate or final product storage, (d) shipping facilities, and (e) utility structures (power houses, etc.).

Secondary Containment means impervious dike and floor structures or drip pans capable of catching and holding any leakage of fluid from transformers or capacitors.

Environment means any surface water, groundwater, land surface or subsurface strata.

A = Askarel Fluid means that the units reported under this heading contain Askarels which have not been drained and replaced with dielectric fluids that do not contain PCB's.

P = PCB Fluid means that the transformers reported under this heading contains a "PCB fluid." By EPA definition, a fluid containing 500 ppm or more of PCB compounds is a "PC fluid." Such units are generally known to contain PCB fluids by manufacturers' information or company records. For purposes of this survey, transformers should also be considered to contain PCB fluid if (a) the original Askarels have been drained and replaced with non-PCB fluid and (b) analytical data is not available to verify that the PCB concentration is less than 500 ppm.

C = Contains Contaminated Fluid means that the transformers reported under this heading would fit into one of the following classi- fications: (a) the fluid has been analyzed and found to con- tain more than 50 ppm of PCB but less than 500 ppm PCB, or (b) nothing is known about the PCB content of the fluid. CAUTION: Because of electrical equipment manufacturing practices during the initial phase-out of PCB use in electrical equipment it is not safe to assume anything about the PCB content of the fluids in transformers purchased since that phase-out. Unless you have actual analytical data to the contrary, it is best to assume that the fluid in transformers purchased since the phase-out is contaminated.

N = Non-PCB Fluid means that the transformers reported under this heading have had their fluid sampled and analyzed and have been shown to contain less than 50 ppm of PCB. Only transformers with such analysis should be reported under this heading. Capacitors may be classified as A or N depending upon manufacturer's information or company records.

Please fill in, under the appropriate heading, the number of units of each type, size and PCB content you have located in areas matching the description given in the left hand column.

Note: Enclosed is a worksheet which you may find useful for collecting information requested in Tables 1, 2, 3, and 4A. Reproduction in sufficient number will allow information to be developed on a unit by unit basis. The worksheet is provided only for convenience. Return of the worksheets with the survey is not being requested.

TABLE 1 NUMBERS OF TRANSFORMERS OR CAPACITORS AND OPPORTUNITIES FOR FLUID RELEASE TO THE ENVIRONMENT

Description of Transformer Location
1. Enclosed in a protective vault
2. In a process building with secondary containment (dikes or drip pans)
3. In a process building, not in a vault, no secondary containment and situated where a PCB release would reach the environment through floor drains or sewers connnected to one of the following: Note: Numbers should be specifically assigned to (a) or (b).
(a) a treatment plant
(b) a receiving stream
4. In a process building, not in a vault, having no secondary containment and no floor drains which would provide PCB release to the environment
5. Located outside, with secondary containment (dikes or drip pans) and a protective roof
6. Located outside with secondary containment (dikes or drip pans)
7. Located outside, no secondary containment and situated where PCB spills or leaks may enter the environment through one of the following pathways: Note: Assign numbers specifically to a, b, or c.
(a) connection by whatever means (e.g., sewers, drains, ditches) to a wastewater treatment system
(b) across ground, paved surface, or other route with resulting discharge to a receiving stream
(c) deposition on or absorption into the soil
8. Total of all units

TABLE 1 NUMBERS OF TRANSFORMERS OR CAPACITORS AND OPPORTUNITIES FOR FLUID RELEASE TO THE ENVIRONMENT

	Number of Transformers																								No. of Large Capacitors	
	500 kVA or Less				501-1000 kVa				1001-2000 kVa				2001-3000 kVa				3001-5000 kVa				Greater than 5001 kVa					
	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	N
					1																				44	
																									73	
					1															2						
				33		5						3				1									42	
				33	2							3				1				2					169	

Someone put this in wrong column

IV PROFILE OF THE EFFECTIVE AGE OF TRANSFORMERS AND CAPACITORS

Information solicited in Table 2 is requested to enable a determination of (a) the remaining life of electrical equipment containing dielectric fluids, and (b) the time frame over which PCB-containing or PCB-contaminated equipment will be naturally phased out. The data will be used in conjunction with cost information previously solicited to estimate costs associated with accelerating a natural phase-out.

Please fill in under the appropriate heading the number of units of each type, size, and PCB content you have identified as meeting the effective age description given in the left hand columns.

Effective age is to be interpreted as either (a) the lapsed time since the unit was purchased or if the unit has undergone a significant rebuild that involved replacement of the core, (b) the lapsed time since that rebuild. An approximation of effective age within 2 years will suffice where records are not conveniently accessible.

TABLE 2 PROFILE OF THE EFFECTIVE AGE OF TRANSFORMERS AND CAPACITORS

	Number of Transformers																								No. of Large Capacitors	
	500 kVA or Less				501-1000 kVa				1001-2000 kVa				2001-3000 kVa				3001-5000 kVa				Greater than 5001 kVa					
	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	N
For the total of all transformers or capacitors shown in Table 1-Question 8, how many would be included in each of the following age classifications:																										
1. Less than 5 years				1				1												2						
2. At least 5 years, but less than 10																										
3. At least 10 years, but less than 15																										
4. At least 15 years, but less than 20												2														
5. At least 20 years, but less than 25																										
6. 25 years or greater				32				4				1				1										
7. Unknown																										
8. Total of all units				33				5				3				1				2						

SH 023063

V EXTENT OF TRANSFORMER FLUID CONTAMINATION

Information requested in Table 3 is, in part, intended to document the extent to which mineral oil transformers which had been thought to be PCB-contaminated (PCB concentrations ranging from 50-499 ppm) in actuality were found to have PCB concentrations for in excess of 499 ppm. The importance of the data lies in judgments to be drawn from it which relate to (a) the desirability of increasing the PCB concentration range in which mineral oil or retrofilled transformers are considered to be PCB-contaminated and (b) the extent to which the PCB contamination of mineral oil or retrofilled transformers can be acceptably and economically reduced using evolving retrofill technologies.

The transformer population to which this portion of the survey is directed are mineral oil or retrofilled transformers, not PCB Askarel type transformers which have not been drained and refilled with other dielectric fluids.

Definitions

Mineral oil or retrofilled transformers = transformers using oil or other replacement fluids as the dielectric and coolant fluid which may have become contaminated by PCB in some concentration.

Analytical Methods

GC/EC : Gas chromatography/electron capture
GC/MS : Gas chromatography/mass spectrometry

TABLE 3. EXTENT OF TRANSFORMER FLUID CONTAMINATION
(Fluids other than Askarels)

	Number of Transformers					
	Less than 500 kVA	501-1000 kVA	1001-2000 kVA	2001-3000 kVA	3001-5000 kVA	Greater than 5000 kVA
1. Units Tested Using						
a) GC/EC	33	5	3	1	2	
b) GC/MS						
c) Other Methods (Please specify)						
2. If specific concentration was not reported, indicate the number of transformers given as						
a) no detectable PCB						
b) less than 50 ppm PCB	33	5	3	1	2	
c) between 50 and 499 ppm PCB						
d) 500 ppm PCB or above						
3. If specific concentration was reported, indicate the number of transformers where PCB concentrations were reported as						
a) no detectable PCB						
b) less than 10 ppm						
c) 10-29 ppm						
d) 30-49 ppm						
e) 50-99 ppm						
f) 100-199 ppm						
g) 200-299 ppm						
h) 300-499 ppm						
i) 500-999 ppm						
j) 1000-4999 ppm						
k) 5000 ppm or greater						

SH : 023078

VI INCIDENCE OF PCB LEAKAGE BASED ON FINDINGS DURING THE FIRST QUARTER (MAY 11 - AUG. 10, 1981) OF THE INTERIM MEASURES INSPECTION PROGRAM

The interim measures program mandated by the court and detailed by EPA (FR 46 (46) 16090-16095) requires a quarterly inspection of all PCB transformers (i.e., those containing 500 ppm PCB's or greater) not posing risk of exposure to food or feed products. (Requirements are more extensive where food or feed products are involved). The initial quarterly inspection is to be completed by August 10, 1981.

Information requested in Table 4 is intended to allow estimation of the frequency with which fluid leaks might be encountered, as well as their severity. Data provided is to be taken from first quarterly inspection records.

While interim measures' inspection requirements are directed at PCB transformers, it is anticipated that a number of company inspection programs will include PCB-contaminated and non-contaminated transformers as well. Accordingly, to develop the broadest possible data base, information is solicited in Part A of Table 4 on all transformers and capacitors included in the routine inspection program.

Part B of Table 4 provides an opportunity to expand upon information summarized in Part A. Information requested parallels that being assembled in contract studies being carried out on behalf of the utility industry as a condition of the court order granting the stay. Rather than being duplicative, the importance of pulp and paper industry specific information requested here and elsewhere in the survey lies in the fact that transformer populations and operating conditions associated with the utility industry are distinctly different from those associated with pulp and paper manufacturing.

Definitions - Table 4 - Part A

Small Leak = The presence of fluid on the external surface of the transformer, but no evidence of its having run off the surface.

Moderate Leak = Instance where fluid has run off the surface.

Rupture = Leak causing immediate cessation of equipment function.

Definitions - Table 4 - Part B

Unit Identification No. or Code = Whatever symbolism or number is used in equipment or maintenance records to identify the transformer or capacitor.

Type Unit = Indicate whether it is a transformer or capacitor and whether the dielectric fluid is either (a) Askarels, (b) PCB fluid, (c) PCB-contaminated fluid or (d) non-contaminated fluid. See Definitions applicable to Table 1 in Section III (page 3).

Rated Capacity = Transformer size (kVA) or capacitor size (kVAR).

Type Leak = Either (a) small leak, (b) moderate leak, (c) rupture or (d) explosion.

Effective Age is to be interpreted as either (a) the lapsed time since the unit was purchased or if the unit has undergone a significant rebuild that involved replacement of the core, (b) the lapsed time since that rebuild. An approximation of effective age within 2 years will suffice where records are not conveniently accessible.

Occurrences of Overload = The intent of the question is an assessment of the frequency which a unit is operated above capacity. Respondents are asked to specify appropriate units. Units other than the number of startups/day or other time period may be used.

TABLE 4 INCIDENCE OF PCB LEAKAGE BASED ON FINDINGS DURING THE FIRST QUARTER (MAY 11 - AUG. 10, 1981) OF THE INTERIM MEASURES INSPECTION PROGRAM

A. Leakage Occurrence

	Number of Transformers																								No. of Large Capacitors	
	500 kVA or Less				501-1000 kVa				1001-2000 kVa				2001-3000 kVa				3001-5000 kVa				Greater than 5000 kVa					
	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	N
1. Of the total number of transformers shown in Table 1-Question 8, how many have been inspected				33				5				3				1				2					169	
2. How many exhibited the designated degree of leakage found during the May 11 to Aug. 10, 1981 inspection program																										
a) No evidence of leaks				24				5				2				1				2					169	
b) Small leaks*				9								1														
c) Moderate leaks*																										
d) Ruptures*																										
e) Explosions																										

*See Definitions for Table 4 - Part A (page 10)

Note: Please describe conditions associated with leakage in Table 4 - Part B

SH 023072

TABLE 4, PART B. CONDITIONS ASSOCIATED WITH LEAKAGE OF TRANSFORMER AND CAPACITOR FLUIDS

Unit Identification No. or Code	Type Unit (Transformer or Capacitor, and whether A, P, C, N)	Rated Capacity KVA or KVAR	Type Leak	Effective Age at Time of Leak	Occurrences of Overload (Specify Units)	Operating Temp. °C (if available)		Estimated Volume of Fluid Loss
						Normal	Max	(specify units)

Note: Attach any continuation sheets that may be required

SA 023073

Solicitation of Information Availability On the Incidental Generation and Distribution Of PCB in Manufacturing Related Activities

I INTRODUCTION

This inquiry is complementary to the PCB Transformer Survey and is intended to identify the information which might be drawn upon to determine (a) the extent to which PCB's may be generated in pulp and paper manufacturing processes, (b) the associated presence of PCB's in mill waste streams, and (c) opportunities for uncontrolled atmospheric release and ground-water intrusion of PCB's. Of related importance is information documenting the pesence of PCB's in raw material furnishes and manufactured end products. Actual data is not being requested at this time, only the extent to which data is available.

The information is to be used to assess (a) what effect possible EPA initiatives for the regulation of activities involving the incidental presence of PCB's might have on the pulp and paper industry, and (b) whether additional investigative work may be necessary.

It is requested that response to this inquiry be made as close to September 1 as possible, and preferably not later than September 15. Questions about the survey should be referred to Duane Marshall or William Gillespie at 212-532-9435. This completed survey form, as well as the Transformer and Capacitor Survey, should be returned to:

Duane Marshall
NCASI
260 Madison Avenue
New York, N.Y. 10016.

II MILL IDENTIFICATION

Mill Name Allied Paper Inc. Location Kalamazoo Operations

Person to Contact for Additional Information Thomas P. Flanagan

Location P. O. Box 2528, Kalamazoo, Michigan 49003

Telephone No. (616) 345-9285

III DATA AVAILABILITY

	Check Appropriately Yes	No
A. PCB GENERATION		
1) Have measurements of PCB concen-concentrations been made in process streams going to chlorination stage bleaching	No bleach plant operation	X
Have corresponding flows been measured	___	X
2) Have measurements of PCB concentrations been made in process streams coming from chlorination stage bleaching	___	X
Have corresponding flows been measured	___	X
B. PCB PRESENCE IN WASTE STREAMS		
Have PCB concentrations been measured in		
a. Untreated wastewater streams from the bleach plant	___	X
b. Untreated total mill effluent	___	X
c. Wastewater treatment sludges	X	___
d. Treated mill effluent	X	___

	Check Appropriately Yes	No
C. OTHER ENVIRONMENTAL RELEASES		
1) Have measurements of PCB concentrations been made at groundwater monitoring wells in the likely direction of leachate flow from		
a. Wastewater impoundments	___	X
b. Undewatered sludge impoundments	___	X
c. Landfills containing dewatered sludges	___	X
2) Have measurements of PCB concentrations been made in emissions from dryer vents	___	X
D. RAW MATERIALS AND PRODUCTS		
Have measurements of PCB concentrations been made in:		
a. Wastepaper furnishes	___	X
b. End products containing wastepaper	___	X
c. End products not containing wastepaper	X	___
E. PROCESSING OF PCB FLUIDS		
1) Has your company attempted to remove fluids containing or contaminated with PCB's from transformers and replace them with a non-PCB fluid or had such service performed by a contractor	___	X
2) Did this action include intentional steps to minimize the residual PCB fluid left in the transformer (such as flushing with solvent or use of a system designed to capture or convert PCB's)	___	X
3) Was the original fluid analyzed for PCB content	___	X
4) Was the replaced fluid analyzed <u>after</u> the transformer had been placed back in service	___	X

29 June 1982

TRANSFORMERS FOR PCB TEST

KAR Laboratory P.O. #36946

Location	KVA	S/N	Mfg.	
Power House	1000	L247848	GE	
	5000	L244426A	GE	
Grey Tank	750	E686721	GE	
Filter Plant	333	4652923	W	
	333	4652926	W	
	333	4658400	W	
Cork Street (Pump House)	37½	2948511	GE	
	37½	2948513	GE	
	37½	2953037	GE	
Mill D (West Side)	37½	3556024	AC	
	37½	3557459	AC	
	50	A99455	Kuhlman	
	200	3A3228.4	AC	[08]° No Leak
	200	3A3228.5	AC	
	200	2A2695	AC	
	1500	3772574	W	[05]³ No Leak
	3000	3772572	W	
	5000	L244426B	GE	
Mill D (Blade Coater)	1000	C168174	GE	No Sample No Leak
Mill C (Maint. Shop)	50	50LS229022	AC	No samples No Leaks
	50	50LS229023	AC	
	50	50LS229028	AC	
	200	1A5348.2	AC	
	200	1A5348.1	AC	
	200	3A3228.6	AC	
Mill E	25	5483814	W	
	25	5896683	W	
	37.5	3343093	GE	
	200	3010456	W	
	200	3010458	W	
	200	3010461	W	
	333	3110153	W	
	333	3110154	W	
Cork St. (Mon.Clarifier)	500	N227413TETA	GE	

1664

Westinghouse
Electric Corporation

24700 W Eleven Mile Road
Box 700
Southfield Michigan 48037
(313) 357-7343

January 31, 1989

FEB 03 1989

2/4/89

Dick,
For your info
dennis
Original in file.

Allied Paper
2030 Portage Street
Kalamazoo, MI 49001

ATTN: Mr. Dennis Wagner

RE: PCB IN OIL ANALYSIS
OUR JOB #DTES-510

Dear Mr. Wagner:

Enclosed, please find the signed lab copy of the PCB in Oil Analysis, for sample submitted to our laboratory.

This sample was taken from the retrofilled 1000 KVA GE Transformer, Serial #C168174.

The lab analysis indicates that the transformer fluid sampled is less than 50 ppm. Please attach the blue label to a clean prominent area on the transformer. This will serve to identify the transformer fluid as having been tested and certified at being less than 50 ppm PCB.

Should you have any questions regarding this or any additional service, please contact me at (313)357-7343.

Sincerely,

Franz Prohaska
Engineering Services Coordinator

FP/sif
Enclosure

Bryant Mill Transformer Inspection - Monthly

No.	Location	Serial #	KVA-Phase	Liquid Fill	Mfg.	Remarks: Bushings, Sight glass, etc.
1	Cork Street Clarifier	P171033	300-1	Oil	GE-Note 4	
2	Cork Street Pumphouse	2948511	37 1/2-1	Oil	GE	
3	Cork Street Pumphouse	2948513	37 1/2-1	Oil	GE	
4	Cork Street Pumphouse	2953037	37 1/2-1	Oil	GE	
5	Filter Plant	4652925	333-1	Oil	W	
6	Filter Plant	4652926	333-1	Oil	W	
7	Filter Plant	4658400	333-1	Oil	W	
17	Mill C #1 Sub	50L5229022	50-1	Oil	AC	
18	Mill C #1 Sub	50L5229023	50-1	Oil	AC	
19	Mill C #1 Sub	50L5229028	50-1	Oil	AC	
20	Mill C #1 Sub	1A5348.1	200-1	Oil	AC	
21	Mill C #1 Sub	1A5348.2	200-1	Oil	AC	
22	Mill C #1 Sub	3A3228.6	200-1	Oil	AC	
23	Mill C #2 Sub	1709062	200-1	Oil	W	
24	Mill C #2 Sub	1709061	200-1	Oil	W	
25	Mill C #2 Sub	1669063	200-1	Oil	W	

Bryant Mill Transformer Inpsection - Monthly
Page 2

26	Mill C #3 Sub	3772576	1000-3	Oil	W
27	Power Plt G	L247848	1000-3	Oil	GE
28	Power Plt G	L244426A	5000-3	Oil	GE
29	Mill D (Coater)	C168174	1000-3	Oil	GE
35	Mill D	L244426B	5000-3	Oil	GE
37	Mill D, E #7 PM Sub	B978489	1000-3	Oil	GE
38	Office Parking Lot	C861660	750-3	Pyranol	GE
42	Mill D-DA	M154560B	2000-3	Type I Oil	GE
43	Mill D-DB	M154560A	2000-3	Type I Oil	GE
44	PPG	2951483	25-1	Oil	GE

* Serial Number corrected

NOTE 1 - Removed from service 1983 and relocated to west side of Mill D as Mill Spare, AEV - See Note #3.

NOTE 2 - Items removed from list have been disposed of. AEV

NOTE 3 - Out of service Transformer GE #E686721 & 360 gals. of oil @ 10 ppm PCBs disposed of on 1/14/87.

NOTE 4 - New Transformer Installed 11/25/86. GE kept old transformer

NOTE 5 - Seven transformers removed from Mill Sight (6/1/88-RRE)
1) 1500-3
3) 200-1
2) 37.5-1
1) 50-1
Two new 2000-3 Transformers installed
One 25-1 Transformer added to list

Rev. 6/1/88-RRE

TRANSFORMERS

#'S 1-12 Out of Service

1	2300-440	1405972	5 KVA-3	Oil	West
2	440-120	2042569	5 KVA-1	Oil	G.E.
3	2300-230-120	25AL5242-8	25 KVA-1	Oil	A.C.
4	2300-230-120	25AL-5242-7	25 KVA-1	Oil	A.C.
5	2300-230-120	25AL5242-6	25 KVA-1	Oil	A.C.
6	2300-230-120	2621566	1.5 KVA-1	Oil	West
7	440-65-45	1738362	15 KVA-1	Oil	West
8	440-65-45	1738360	15 KVA-1	Oil	West
9	440-65-45	1738361	15 KVA-1	Oil	West
10	2400-460	6581387	10 KVA-1	Oil	West
11	2400-460	6581385	10 KVA-1	Oil	West
12	2400-460	6581386	10 KVA	Oil	West

Note 1 - One 25-1 Still in Service put on main transformer list. 6/1/88 RRE

Rev. 6/1/88
/deo

Bryant Mill Transformer Inspection - Monthly

Al Vickery
Revised 3/9/83
Revised 2/7/84
*Revised 3/26/84
**Revised 4/84
Revised 9/87

NO.	LOCATION	SERIAL #	KVA-PHASE	LIQUID FILL	MFG.	REMARKS: Bushing, Sightglass, etc.
1	Cork Street Clarifier	P171033	300-1	Oil	GE - Note 4	
2	Cork Street Pump House	2948511	37½-1	Oil	GE	
3	Cork Street Pump House	2948513	37½-1	Oil	GE	
4	Cork Street Pump House	2953037	37½-1	Oil	GE	
5	Filter Plant	4652923	333-1	Oil	W	
6	Filter Plant	4652926	333-1	Oil	W	
7	Filter Plant	4658400	333-1	Oil	W	
17	Mill C #1 Sub	50L5229022	50-1	Oil	AC	
18	Mill C #1 Sub	50L5229023	50-1	Oil	AC	
19	Mill C #1 Sub	50L5229028	50-1	Oil	AC	
20	Mill C #1 Sub	1A5348.1	200-1	Oil	AC	
21	Mill C #1 Sub	1A5348.2	200-1	Oil	AC	
22	Mill C #1 Sub	3A3228.6	200-1	OIl	AC	
23	Mill C #2 Sub	1709062 *	200-1	Oil	W	
24	Mill C #2 Sub	1709061	200-1	Oil	W	
25	Mill C #2 Sub	1669063	200-1	Oil	W	
26	Mill C #3 Sub	3772576	1000-3	Oil	W	
27	Power Plt G	L247848	1000-3	Oil	GE	
28	Power Plt G	L244426A	5000-3	Oil	GE	
29	Mill D (Coater)	C168174	1000-3	Oil	GE	
~~31~~	~~Mill D, W. Port. Creek~~	~~3772574~~	~~1500-3~~	~~Oil~~	~~W~~	
~~32~~	~~Mill D, W~~ Port. Creek	~~3A3228.4~~	~~200-1~~	~~Oil~~	~~AC~~	
~~33~~	~~Mill D, W. Port. Creek~~	~~3A3228.5~~	~~200-1~~	~~Oil~~	~~AC~~	

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NO.	LOCATION	SERIAL #	KVA-PHASE	LIQUID FILL	MFG.	Remarks: Bushing, Sightglass, etc.
~~34~~	~~Mill D, W Port. Creek~~	~~2A2695~~	~~200-1~~	~~Oil~~	AC	
35	Mill D, ~~W.~~ ~~Port. Creek~~	L244426B	5000-3	Oil	GE	
37	Mill D, E #7 PM Sub	B978489	1000-3	Oil	GE	
38	Office Parking Lot	C861660	750-3	Pyranol	GE	
~~39~~	~~Old P.P.G.~~	~~3556024~~	~~37.5-1~~	~~Oil~~	~~AC~~	Removed
~~40~~	~~Old P.P.G.~~	~~3557459~~	~~37.5-1~~	~~Oil~~	~~AC~~	
~~41~~	~~Old P.P.G.~~	~~A99455~~	~~50-1~~	~~Oil~~	~~Kuhlman~~	
42	MILL D-DA	M154560B	2000-3	TYPE I OIL	GE	
43	MILL D-DB	M154560A	2000-3	TYPE I OIL	GE	
44	PPG	2951483	25-1	OIL	GE	

* Serial Number corrected
** Serial Number corrected 4/84

NOTE 1 - Removed from service 1983 and relocated to West side of Mill D as Mill spare. AEV See Note #3.

NOTE 2 - Items removed from list have been disposed of. AEV

NOTE 3 - Out of service Transformers GE #E686721 & 360 gallons of oil @ <10ppm PCB's disposed of on 1-14-87.

NOTE 4 - New Transformer Installed 11-25-86. GE kept old transformer.

NOTES - • SEVEN TRANSFORMERS REMOVED FROM MILL SIGHT (1) 150-3; (3) 200-1; (1) 37.5-1 and (1) 50-1: • TWO NEW 2000-3 TRANSFORMERS INSTALLED. • ONE 25-1 TRANSFORMER ADDED TO LIST } 6-1-85 RRC

TRANSFORMERS

#'s 1-12 Out of Service

~~#13 In Service~~

1	2300-440	1405972	5 KVA-3	Oil	West
2	440-120	2042569	5 KVA-1	Oil	G.E.
3	2300-230-120	25AL-5242-8	25 KVA-1	Oil	A.C.
4	2300-230-120	25AL-5242-7	25 KVA-1	Oil	A.C.
5	2300-230-120	25AL-5242-6	25 KVA-1	Oil	A.C.
6	2300-230-120	2621566	1.5 KVA-1	Oil	West
7	440-65-45	1738362	15 KVA-1	Oil	West
8	440-65-45	1738360	15 KVA-1	Oil	West
9	440-65-45	1738361	15 KVA-1	Oil	West
10	2400-460	6581387	10 KVA-1	Oil	West
11	2400-460	6581385	10 KVA-1	Oil	West
12	2400-460	6581386	10 KVA	Oil	West
~~13~~	~~R.P.G~~	~~2951483~~	~~25-1~~	~~Oil~~	~~G.E.~~

NOTE 1 - ONE 25-1 STILL IN SERVICED PUT ON MAIN TRANSFORMER LIST: 6-1-85 R.RE.

9/25/87

DE/deo

Bryant Mill Transformer Inspection - Monthly

Al Vickery
Revised 3/9/83
Revised 2/7/84
*Revised 3/26/84
**Revised 4/84
Revised 9/87

NO.	LOCATION	SERIAL #	KVA-PHASE	PCB's ppm 3/84	LIQUID FILL	PCB's ppm 9/87	MFG.	REMARKS: Bushing, Sightglass, etc.
1	Cork Street Clarifier	P171033	300-1	<10	Oil	<5	GE - Note 4	
2	Cork Street Pump House	2948511	37½-1	<10	Oil	<5	GE	
3	Cork Street Pump House	2948513	37½-1	<10	Oil	<5	GE	
4	Cork Street Pump House	2953037	37½-1	<10	Oil	<5	GE	
5	Filter Plant	4652923	333-1	<10	Oil	9	W	
6	Filter Plant	4652926	333-1	15	Oil	16	W	
7	Filter Plant	4658400	333-1	14	Oil	11	W	
17	Mill C #1 Sub	50L5229022	50-1	<10	Oil	<5	AC	
18	Mill C #1 Sub	50L5229023	50-1	<10	Oil	<5	AC	
19	Mill C #1 Sub	50L5229028	50-1	13	Oil	<5	AC	
20	Mill C #1 Sub	1A5348.1	200-1	<10	Oil	<5	AC	
21	Mill C #1 Sub	1A5348.2	200-1	<10	Oil	<5	AC	
22	Mill C #1 Sub	3A3228.6	200-1	<10	Oil	<5	AC	
23	Mill C #2 Sub	1709062 *	200-1	<10	Oil	<5	W	
24	Mill C #2 Sub	1709061	200-1	26	Oil	17	W	
25	Mill C #2 Sub	1669063	200-1	<10	Oil	<5	W	
26	Mill C #3 Sub	3772576	1000-3	<10	Oil	10	W	
27	Power Plt G	L247848	1000-3	<10	Oil	10	GE	
28	Power Plt G	L244426A	5000-3	<10	Oil	<5	GE	
29	Mill D (Coater)	C168174	1000-3	67	Oil	110	GE	
31	Mill D, W. Port. Creek	3772574	1500-3	32	Oil	48/64?	W	
32	Mill D, W Port. Creek	3A3228.4	200-1	<10	Oil	9	AC	
33	Mill D, W. Port. Creek	3A3228.5	200-1	41	Oil	93	AC	

NO.	LOCATION	SERIAL #	KVA-PHASE	PCB 10 PPM 3/84	LIQUID FILL	9/87	MFG.	Remarks: Bushing, Sightglass, etc.
34	Mill D, W Port. Creek	2A2695	200-1	37	Oil	43	AC	
35	Mill D, W. Port. Creek	L244426B	5000-3	<10	Oil	<5	GE	
37	Mill D, E #7 PM Sub	B978489	1000-3	<10	Oil	<5	GE	
38	Office Parking Lot	C861660	750-3		Pyranol		GE	
39	Old P.P.G.	3556024	37.5-1		Oil	5	AC	
40	Old P.P.G.	3557459	37.5-1		Oil	<5	AC	
41	Old P.P.G.	A99455	50-1		Oil	<5	Kuhlman	

* Serial Number corrected
** Serial Number corrected 4/84

NOTE 1 - Removed from service 1983 and relocated to West side of Mill D as Mill spare. AEV See Note #3.

NOTE 2 - Items removed from list have been disposed of. AEV

NOTE 3 - Out of service Transformers GE #E686721 & 360 gallons of oil @ <10ppm PCB's disposed of on 1-14-87.

NOTE 4 - New Transformer Installed 11-25-86. GE kept old transformer.

TRANSFORMERS

#'s 1-12 Out of Service

13 In Service

1	2300-440	1405972	5 KVA-3	Oil	West
2	440-120	2042569	5 KVA-1	Oil	G.E.
3	2300-230-120	25AL-5242-8	25 KVA-1	Oil	A.C.
4	2300-230-120	25AL-5242-7	25 KVA-1	Oil	A.C.
5	2300-230-120	25AL-5242-6	25 KVA-1	Oil	A.C.
6	2300-230-120	2621566	1.5 KVA-1	Oil	West
7	440-65-45	1738362	15 KVA-1	Oil	West
8	440-65-45	1738360	15 KVA-1	Oil	West
9	440-65-45	1738361	15 KVA-1	Oil	West
10	2400-460	6581387	10 KVA-1	Oil	West
11	2400-460	6581385	10 KVA-1	Oil	West
12	2400-460	6581386	10 KVA	Oil	West
13	P.P.G	2951483	25-1	Oil	G.E.

9/25/87

DE/deo

SCM. ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Dick Eaton

FROM: Al Vickery

RECEIVED
APR 6 1984
R. R. EATON

OFFICE:

OFFICE:

SUBJECT: Transformer PCB Analysis
Kar Lab - Allied P.O.No. 54841

DATE: April 5, 1984

Attached is a copy of the Bryant mill transformers showing the PCB contamination level evaluated using Aroclor Standards (1254). The Mill D coater 1000 KVA* transformer, s/n C168174 has 67 ppm. Since this exceeds 50 it must be labeled as a PCB contaminated unit. By a copy of this memo I am requesting Jim Waldron to do this.

I would recommend we drain and flush this transformer and refill it with new transformer mineral oil. Then this contaminated oil can be disposed of legally. You will note that this unit is located East of Portage Creek just North of the Bryant Street extension. Since this unit does not have a retaining basin a leak (spill) would go directly into Portage Creek.

Two of the three 200 KVA units located West of Portage Creek adjacent to the old engine room also show a level of PCB just under 50 ppm. (s/n 3A3228.5 is 41 ppm and 2A2695 is 37 ppm) Since these units are located over the West bank of Portage Creek and would be disposed of when the old engine room is razed, I suggest we proceed to eliminate this bank re relocating the electrical circuits served by this bank of transformers. The other unit showing a level of PCB just under 50 is the 1500 KVA* s/n 3773574 (32 ppm). This unit should be drained and flushed.

* S/N C168174 - 425 gallons
* S/N 3772574 - 740 gallons

/kmj

Bryant Mi _ Transformer Inspection - Monthly

Al Vickery

Revised 3/9/83
Revised 2/7/84
* Revised 3/26/84
** Revised 4/84

No.	Location	Serial #	KVA-Phase	Liquid Fill	Mfg.	Remarks: ppm Bushing, sightglass, bottom valve, etc.
1	Cork Street Clarifier	N227413TETA **	500-3	Oil	GE	<10
2	Cork Street Pump House	2948511	37½-1	Oil	GE	<10
3	Cork Street Pump House	2948513	37½-1	Oil	GE	<10
4	Cork Street Pump House	2953037	37½-1	Oil	GE	<10
5	Filter Plant	4652923	333-1	Oil	W	<10
6	Filter Plant	4652926	333-1	Oil	W	15
7	Filter Plant	4658400	333-1	Oil	W	14
8	W.Portage Creek	E686721	750-3	Oil	GE	See Note 1 <10
17	Mill C #1 Sub	50L5229022	50-1	Oil	AC	<10
18	Mill C #1 Sub	50L5229023	50-1	Oil	AC	<10
19	Mill C #1 Sub	50L5229028	50-1	Oil	AC	13
20	Mill C #1 Sub	1A5348.1	200-1	Oil	AC	<10
21	Mill C #1 Sub	1A5348.2	200-1	Oil	AC	<10
22	Mill C #1 Sub	3A3228.6	200-1	Oil	AC	<10
23	Mill C #2 Sub	1709062 *	200-1	Oil	W	<10
24	Mill C #2 Sub	1709061	200-1	Oil	W	26
25	Mill C #2 Sub	1669063	200-1	Oil	W	<10
26	Mill C #3 Sub	3772576	1000-3	Oil	W	<10
27	Power Plt G	L247848	1000-3	Oil	GE	<10
28	Power Plt G	L244426A	5000-3	Oil	GE	<10
29	Mill D (Coater)	C168174	1000-3	Oil	GE	67
31	Mill D, W. Port. Creek	3772574	1500-3	Oil	W	32
32	Mill D, W Port. Creek	3A3228.4	200-1	Oil	AC	<10
33	Mill D, W. Port. Creek	3A3228.5	200-1	Oil	AC	41

* Serial Number corrected
** S/N Corrected 4/84

Bryant Mill Transformer Inspection - Monthly

(Page 2)

Revised 3/9/83
Revised 2/7/84
Revised 3/26/84

No.	Location	Serial #	KVA-Phase	Liquid Fill	Mfg.	Remarks: PPM PCB	Bushing, sightglass, bottom valve, etc.
34	Mill D, W Port. Creek	2A2695	200-1	Oil	AC	37	
35	Mill D, W. Port. Creek	L244426B	5000-3	Oil	GE	<10	
37	Mill D, E #7 PM Sub	B978489	1000-3	Oil	GE	<10	
38	Office Parking Lot	C861660	750-3	Pyranol	GE		

NOTE 1 - Removed from service 1983 and relocated to West side of Mill D as Mill spare. AEV

NOTE 2 - Items removed from list have been disposed of. AEV

TABLE 1 NUMBERS OF TRANSFORMERS OR CAPACITORS AND OPPORTUNITIES FOR FLUID RELEASE TO THE ENVIRONMENT

Allied - Bryant Kalamazoo MI

Number of Transformers																								*No. of Large Capacitors	
500 kVA or Less				501-1000 kVa				1001-2000 kVa				2001-3000 kVa				3001-5000 kVa				Greater than 5001 kVa					
A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	N
																								53	17
																								50	
				1			1																2		
			19			1	3				1														
			19	1		1	4				1												2	103	17

COPY OF REPORT RECEIVED FROM MARIAN H. NEUDEL IN CHICAGO ILL ON 17 AUGUST 19

18 AUGUST 1982

cc: TOM RILEY (N
TOM FLANAGAN
→ LEO STOEFFLER
AL VICKERY

REPORT ON INSPECTION TO DETERMINE COMPLIANCE WITH THE FEDERAL PCB DISPOSAL AND MARKING REGULATIONS

Concurrence obtained by phone - Steve Keiser 2/82

ALLIED PAPER INC.
2030 PORTAGE STREET
KALAMAZOO, MICHIGAN 49003

MAY 12, 1981

PERFORMED FOR:

U.S. ENVIRONMENTAL PROTECTION AGENCY
TOXIC SUBSTANCES OFFICE
230 SOUTH DEARBORN STREET
CHICAGO, ILLINOIS 60604

PERFORMED BY:

VERSAR INC.
6621 ELECTRONIC DRIVE
SPRINGFIELD, VIRGINIA 22151

AP 1

Document Predesignated for Stoeffler

SA 044805

Objective

The purpose of this inspection was to document and verify the compliance of Allied Paper Inc. with Federal PCB Disposal and Marking Regulations (40 CFR 761) published in Part VI of the Federal Register on May 31, 1979. The specific objective of this inspection was to document Allied Paper Inc.'s use of PCBs in transformers, capacitors, and hydraulic systems and disposal of PCB items and waste oil.

I. Facility and Responsible Official

Allied Paper Inc.
2030 Portage Street
Kalamazoo, Michigan 49003

U.G. Stoeffler, Manager, Process Development
Phone: (616) 345-7131

II. Inspection Date and Participants

May 12, 1981
Allied Paper Inc. - U.G. Stoeffler, Manager, Process Development
Albert E. Vickery, Manager of Engineering

Vermar Inc. - J. Kevin Chisholm, Compliance Auditor
Paul E. Schaffman, Compliance Auditor

III. Inspection Findings

At the time of the inspection, Allied Paper had approximately 50 transformers, of which 39 were in service and 11 were stored for possible reuse. According to facility spokesman, none had been tested by Allied Paper Inc. for PCB contamination.

Nameplates on two of the in-service transformers indicate that they are filled with a PCB fluid. Those two transformers both had M_L PCB labels affixed, were surrounded by dikes, and were not leaking during the inspections. Both transformers were included in Allied Paper's PCB Inventory (Attachment No. 1).

Thirty-six transformers were observed during the inspection, transformer nameplates indicated that all were mineral oil units, of these 36 observed, 26 were in service, and 10 were out of service for possible reuse. Inspection of the transformers in service, revealed that eight were leaking on the sides (sweating), and eight more were leaking onto their bases and the ground. Oil samples were taken from the bottom spout of two leaking units (See Table 1, Lines 20 and 35). PCB analysis of these reported mineral oil samples show PCB concentrations of 280 ppm and 12 ppm (See Table 2, Samples 8 and 9). Two soil samples were also taken from around two leaking in-service units (See Table 1, Lines 3 and 11). PCB analysis of these samples show no PCB contamination of soil (See Table 2, Samples 1 and 4, and Photographs 3-10).

Two of the 10 out-of-service transformers were leaking on their sides (sweating), and five were leaking onto the ground. Transformer oil samples were taken from the bottom spout of two leaking units (See Table 1, Lines 5 and 7). PCB analysis of these oil samples also show PCB contamination in concentrations of 11 ppm and 9 ppm (See Table 2, Samples 2 and 3).

Three soil samples were also taken from around three leaking units in storage (See Table 1, Lines 7, 13, and 16). PCB analysis of two of these samples show no PCB contamination (See Table 2, Samples 4 and 6). PCB analysis of the remaining sample revealed a PCB concentration of 140 ppm (See Table 2, Sample No. 7). This leakage originated from a 425-gallon General Electric transformer stored outside near the Mill D Substation (See Photographs 3-10).

At the time of the inspection, Allied Paper's capacitor records showed a total of 169 large PCB capacitors at the facility (See Attachment No. 1). Of this group, 107 were in use, 56 were in PCB storage area, and six were in the Mill D Substation, intended for use at the water filter plant. Approximately 33 large, high-voltage, in-service PCB capacitors were observed. Each had an M_L PCB label affixed, and none were leaking.

The PCB storage area contained approximately 56 large PCB capacitors; 40 of which had M_L PCB labels. None were marked with the date they were placed in storage. The inspection team was informed of the possibility that many could be used again. The inspection team was also told that a General Electric Pyranol, 2400 V capacitor was stored for disposal. It had no M_L PCB label affixed, and was not dated as to when it was placed in

TABLE 1. ALLIED PAPER INC. TRANSFORMERS
(In Order Observed)

should be
1709062
1709061

Location	Manufacturer	Serial Number	Gallon Capacity	Sample Number/Type	Photo	Oil Type	Observations
(1) Bryant Office Building	G.E. Pyranol	C-65 L60	340	-	-	PCB	No leaks - missing nameplate has PCB M_L label.
(2) Number 2 Substation	Westinghouse	1709002	154	-	x	-	Leak on side
(3) Number 2 Substation	Westinghouse	1669063	154	1/Soil	x		Leak to ground
(4) Number 2 Substation	Westinghouse	1709051	154	-	x	-	Leak on side
Storage by Mill D Substation - 1500 kva (all out of service) - outside on concrete slab							
(5) Storage by Mill D Substation	Kuhlman	934566	320	2/Oil	x	-	Leak to concrete slab/ground below
(6) Storage by Mill D Substation	Kuhlman	923087	320	-	x	-	Leak to concrete slab
(7) Storage by Mill D Substation	Kuhlman	923088	320	3+4/Oil + Soil	x	-	Significant leak to concrete slab/ground
(8) Storage by Mill D Substation	G.E.	2845676	150	-	x	N.O.	Leak on side
(9) Storage by Mill D Substation	G.E.	2845678	150	-	x	N.O.	No leaks
(10) Storage by Mill D Substation	G.E.	2845675	160	-	x	N.O.	No leaks
(11) Mill D Substation	Westinghouse	3772574	740	5/Soil	x	N.O.	Leak to concrete slab and and ground below
(12) Outside Mill D	-	L24142613	520	-	-	N.O.	No leaks - 6 months in use
Storage by Mill D (all out of service) - outside							
(13) Storage by Mill D	Allis Chalmers	4767107	450	6/Soil	x	N.O.	Leaks to soil - on wood beams
(14) Storage by Mill D	Allis Chalmers	4767106	450	-	x	N.O.	No leaks - on wood beams
(15) Storage by Mill D	Westinghouse	3772576	470	-	x	N.O.	Leaks on side - on wood beams
(16) Storage by Mill D	G.E.	B270459	425	7/Soil	x	N.O.	No leaks to soil, on metal beams
(17) Mill D, Under Machine #7	Westinghouse	6539075	350	-	-	PCB	No leaks - has M_L PCB label

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TABLE 1. ALLIED PAPER INC. TRANSFORMERS (CONTINUED)
(In Order Observed)

Location	Manufacturer	Serial Number	Gallon Capacity	Sample Number/Type	Photo	Oil Type	Observations
Old Engine Room - outside with roof - on concrete slab							
18)Old Engine Room	Allis Chalmers	3A-3220.5	(200 kva)	-	-	M.O.	Leaks to slab below
19)Old Engine Room	Allis Chalmers	2A-2695	(200 kva)	-	-	M.O.	Leaks to slab below
20)Old Engine Room	Allis Chalmers	3A-3228.4	(200 kva)	8/Oil	-	M.O.	Leaks to slab below
21-23)Old Engine Room	?(3)	?	30,30,50	-	-	M.O.	No significant leaks
24)Mill D - Blade Coater	G.E.	C-168174	425	-	-	M.O.	No leaks
Mill C - Welding Shop Substation - Puddles of rain water and poor visability made it difficult to determine leaks to ground - outside							
25)Mill C - Welding Shop	Allis Chalmers	1A-5348.1	(200 kva)	-	-	-	Leak at base
26)Mill C - Welding Shop	Allis Chalmers	3A-3228.6	(200 kva)	-	-	-	No leaks
27)Mill C - Welding Shop	Allis Chalmers	1A-5348.2	(200 kva)	-	-	-	No leaks
28)Mill C - Welding Shop	Allis Chalmers	50-LS-229023	40 gal.	-	-	-	No leaks
29)Mill C - Welding Shop	Allis Chalmers	50 LS-229022	40 gal.	-	-	-	Leak at base
30)Mill C - Welding Shop	Allis Chalmers	50-LS-229020	40 gal.	-	-	-	Leak at base
Mill C - Starch Kitchen - outside - concrete pad							
31)Mill C - Starch Kitchen	G.E.	3766057	(200 kva)	-	-	M.O.	Leak on sides
32)Mill C - Starch Kitchen	G.E.	3766865	(200 kva)	-	-	M.O.	Leak to ground (concrete)
33)Mill C - Starch Kitchen	G.E.	3766866	(200 kva)	-	-	M.O.	Leak on sides
34)Mill C - Starch Kitchen	Westinghouse	4395268	(200 kva)	-	-	-	Leak on sides
35)Mill C - Starch Kitchen	Westinghouse	4395273	(200 kva)	9/Oil	-	-	Leak to ground (concrete)
36)Mill C - Starch Kitchen	Westinghouse	4395257	(200 kva)	-	-	-	Leak to ground (concrete)

SA 044809

TABLE 2. PCB SAMPLE RESULTS - ALLIED PAPER INC.

Sample Number	Description	PCB Concentation (ppm)	Aroclor Type
1	Sediment below Westinghouse transformer 1669063	<1	--
2	Oil from Kuhlman transformer 934566 - In storage	11	1254
3	Oil from Kuhlman transformer 923088 - In storage	9	1254
4	Sediment below Kuhlman transformer 923088 - In storage	<1	--
5	Sediment below Westinghouse Transformer 3772574	<1	--
6	Sediment below Allis Chalmers transformer 4767107 - In storage	<1	--
7	Sediment below General Electric transformer 8978489 - In storage	140	Mix
8	Transformer oil from Allis Chalmers 3A-3228.4	280	1260
9	Transformer oil from Westinghouse transformer 4395273	12	1254
10	Hydraulic - Machine No. 5 Table Lift	<1	--
11	Hydraulic - Machine No. 5 Swim Roll	<1	--
12	Hydraulic - Machine No. 5 Size Press	<1	--
13	Hydraulic - Machine No. 6 Table Lift	<1	--
14	Hydraulic Mill D Blade Coater - Swim Stack	<1	--
15	Hydraulic Mill D Fountain Head	<1	--
		<1	--

from sample [illegible] or drawing [illegible]

SA 044810

storage. Only capacitors were stored in this area (See Attachment No. 1 - Monarch Monthly PCB Capacitor Inspection Report).

The PCB-storage area measured approximately 12 x 12 feet, had an eight-inch concrete curb, was protected from rainfall, and was marked with the Mr. PCB label (See Attachment B, Photographs). There was some water leaking into the storage area.

The inspection team was informed that no transformers or capacitors have been disposed of in recent years.

Six large, high-voltage capacitors in the Mill D Substation were stored on the ground without protection from rainfall. The inspection team was informed the capacitors would be used at the water filter plant. Each capacitor was marked with an Mr. PCB label and none were leaking (See PCB Inventory in Attachment No. 1 for PCB capacitor details).

Allied Paper Inc. has 17 separate units of equipment containing hydraulic fluid. The inspection team was informed that no PCB fluids have been used. MPO-15 is now being used in all hydraulic units according to company personnel (See Purchase Order, Attachment No. 2). Samples were taken from six of the 17 hydraulic units, and analysis showed no detectable PCB contamination in these samples. The total volume of fluid in all units is 572 gallons (See Table 2 for sampling results and Table 3 for details of hydraulic units).

At the time of the inspection, there were six barrels of waste oil in Mill D, and two or three barrels in Mill C. Sample 16 was taken from one of the Mill D barrels (See Table 1). Analysis showed no detectable PCB contamination in this sample.

The inspectors were informed that waste lubrication and hydraulic oils are stored in barrels before being collected for reuse. Mr. Stoeffler later provided a copy of a record indicating the waste oil collection company name (See Attachment No. 4).

At the time of the inspection, the only official PCB record Allied Paper Inc. disclosed to the inspectors was the Bryant Monthly PCB Capacitor and Transformer Inspection Report, and the Monarch Monthly PCB Capacitor Inspection Report (See Attachment No. 1). The Bryant Monthly Transformer

TABLE 3. ALLIED PAPER INC. HYDRAULIC UNITS

Location/Machine Type	Volume (gals.)	Sample Number
MILL C		
Machine #5 - Size Press	20	12
Swim Roll (Calendar Stack)	40	11
Table Lift	45	10
Machine #6 - Swim Roll	40	
Table Lift	50	13
MILL D		
Machine #7 - Size Press	35	
Swim Roll	40	
Table Lift	50	
Machine #8 - Size Press	35	
Safety Guard	30	
Table Lift	50	
Machine #9 - Size Press	35	
Swim Roll	40	
Blade Coater-Swim Stack	28	14
Fountain Heads	28	15
MILLS C & D		
Choppers	2-3 (each)	
TOTAL HYDRAULIC VOLUME	572 gallons	

218412 H5

Record does not indicate the weight or volume of PCB fluid contained in the two PCB transformers. The Bryant Monthly Capacitor Record lists in-service units, and the Monarch Monthly Capacitor Record lists primarily those capacitors in storage.

On July 20, 1980, Versar received (via EPA Region V) Allied Paper's revised PCB supplement for the Bryant Mill (See Attachment No. 5). All capacitors in service at the Monarch Mill have been added to the Bryant Mill list. This revised PCB supplement shows two PCB transformers containing 698 gallons of PCB fluid and a total of 200 in-service, large low-voltage PCB capacitors. Fifty-six large low-voltage PCB capacitors are reported in storage at location 7C.

IV. Facility Description

Allied Paper Inc. is a subsidiary of SCM Corporation. There are approximately 587 employees at the Kalamazoo plant. Allied Paper uses baled feedstock and blend (stocks and fibers) to make fine papers.

V. Inspection Summary

The inspection team arrived at Allied Paper Inc. at 9:15 on the morning of May 12, 1981. Inspectors presented Mr. Stoeffler with their credentials, a "Notice of Inspection," and a "Notice of Confidentiality," both of which he signed. After a brief discussion of the scope and intent of the inspection, Mr. Stoeffler accompanied the inspection team to Mr. Vickery's office. On route the inspectors observed the General Electric Pyranol PCB transformer (See Table 1 for transformer details). Mr. Vickery explained Allied's PCB inventory of transformers and capacitors. The inspection team obtained documents and information on transformers and capacitors. Mr. Vickery stated that no transformers or capacitors had been disposed of in recent years. He also stated that no testing had been performed on transformers for PCBs and that the PCB transformers were known as such by their nameplates. Almost all of the large capacitors in the plant contained PCBs (approximately half are high-voltage capacitors). Mr. Vickery stated that all the large capacitors are marked with the Mr. PCB labels (See Attachment No. 1 for an inventory of all PCB transformers and capacitors).

Mr. Vickery and the inspection team proceeded to inspect transformers and capacitors in the plant in the following order: Mill C Beater Room (five large, high-voltage, General Electric Pyranol capacitors, which were not leaking and had Mr. PCB labels); PCB Storage Area (capacitors only); Number 2 Substation (See Table 1, transformers 2,3, and 4); storage area by Mill D 1500 kva Substation (transformers 5-10); and Mill D 1500 kva Substation (transformer 11, twenty-four large, high-voltage capacitors which had Mr. PCB labels and were not leaking, and six large, high-voltage capacitors stored for reuse at the water filter plant). Mr. Vickery left the inspection team at this time. He informed the inspection team that he would have an employee show the inspectors any other transformers or capacitors upon request. He also stated that the inspection team could proceed without escort to inspect other transformers (12-16). Mr. Mike Brown, Electrician, then escorted the inspectors to Mill D, where the Westinghouse Inertsen PCB transformer was located (17). There were also four large, high-voltage PCB capacitors above the transformer which were marked with Mr. PCB labels, and were not leaking. Mr. Brown and the inspection team then proceeded to the Old Engine Room where six transformers were in use on a concrete slab with a roof and wall on one side (transformers 18-23). Mr. Brown and the inspectors then visited the Mill D Blade Coater Transformer (24), the Mill C Welding Shop Substation (transformers 25-30), and the Mill C Starch Kitchen, outside the substation (transformers 31-36).

The inspection team met again with Mr. Les Stoeffler. He introduced inspectors to Per Hagard, Maintenance Superintendent. Mr. Hagard stated that no PCB hydraulic fluids (Pydrauls, etc.) had been used to his knowledge in his 16 years at the plant. He said that at present all machines use MPO-15 from Dubois Chemical Company of Kalamazoo. Messrs. Stoeffler and Haggard, along with the inspectors, discussed the hydraulic units at the plant (Table 3). Inspection and sampling was conducted as listed in Table 3.

Mr. Hagard and Mr. Stoeffler then informed the inspection team that waste hydraulic oil is put in barrels with waste lubricating oils (the majority of the volume). Mr. Hagard stated that Mill D has six barrels and Mill C has two to three barrels. The inspection team sampled one barrel at Mill D (Sample No. 16). Mr. Stoeffler later sent a document indicating which company picks up this waste oil (per telephone conversation of May 19, 1981). The inspectors were told this waste oil accumulates at a rate of approximately 500 gallons a year.

ATTACHMENT A

PCB ANALYTICAL REPORT

PREPARED FOR: REF. # 717.18

Jon Byrnside

FACILITY INSPECTED: ALLIED PAPER INC.

SAMPLE NO.	LAB NO.	CONCENTRATION PARTS/MILLION	AROCLOR	COMMENTS
API-01	3649	<1	-	Sediment
API-02	3650	11	1254	Transformer oil
API-03	3651	9	1254	Transformer oil
API-04	3652	<1	-	Sediment
API-05	3653	<1	-	Sediment
API-06	3654	<1	-	Sediment
API-07	3655	140	Mix	Sediment
API-08	3656	28	1260	Transformer oil
API-09	3657	12	1254	Transformer oil
API-10	3658	<1	-	Hydraulic fluid
API-11	3659	<1	-	Hydraulic fluid
API-12	3660	<1	-	Hydraulic fluid
API-13	3661	<1	-	Hydraulic fluid
API-14	3662	<1	-	Hydraulic fluid
API-15	3663	<1	-	Hydraulic fluid
API-16	3664	<1	-	Waste oil

DATE: 8/4/81

Mark T. Carkhuff

MARK T. CARKHUFF, CHEMIST
APPLIED CHEMISTRY DIVISION

6621 ELECTRONIC DRIVE, SPRINGFIELD, VIRGINIA 22151 TELEPHONE. (703) 750-3000

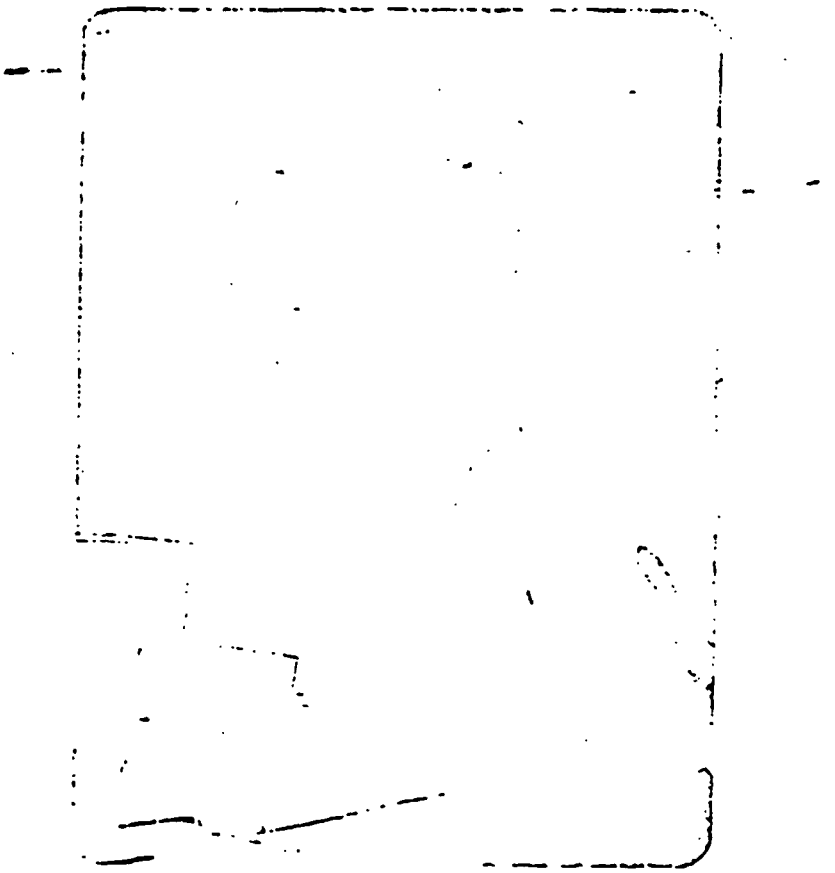
ATTACHMENT B

LIST OF PHOTOGRAPHS

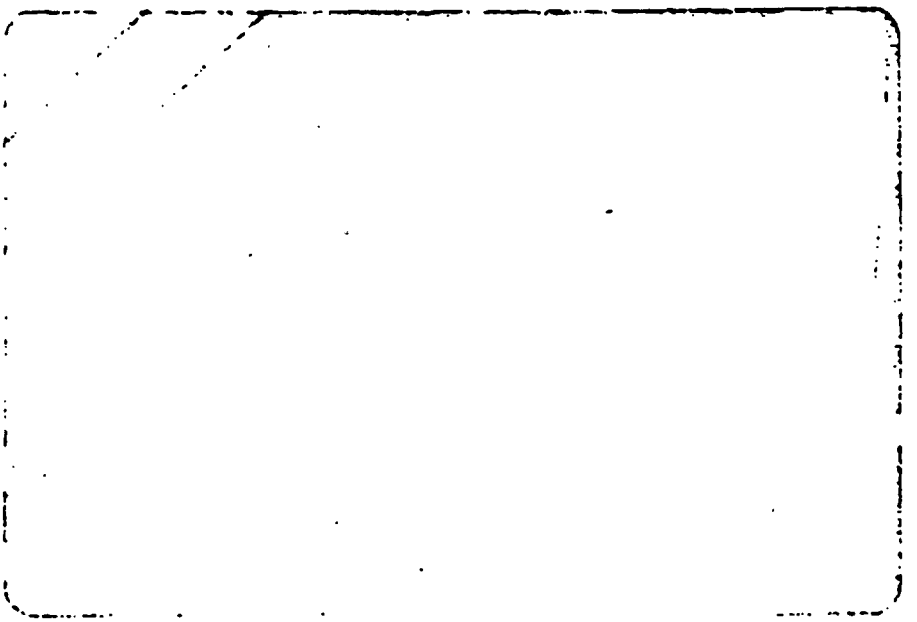
ALLIED PAPER INC.
2030 PORTAGE STREET
KALAMAZOO, MICHIGAN 49003

MAY 12, 1981

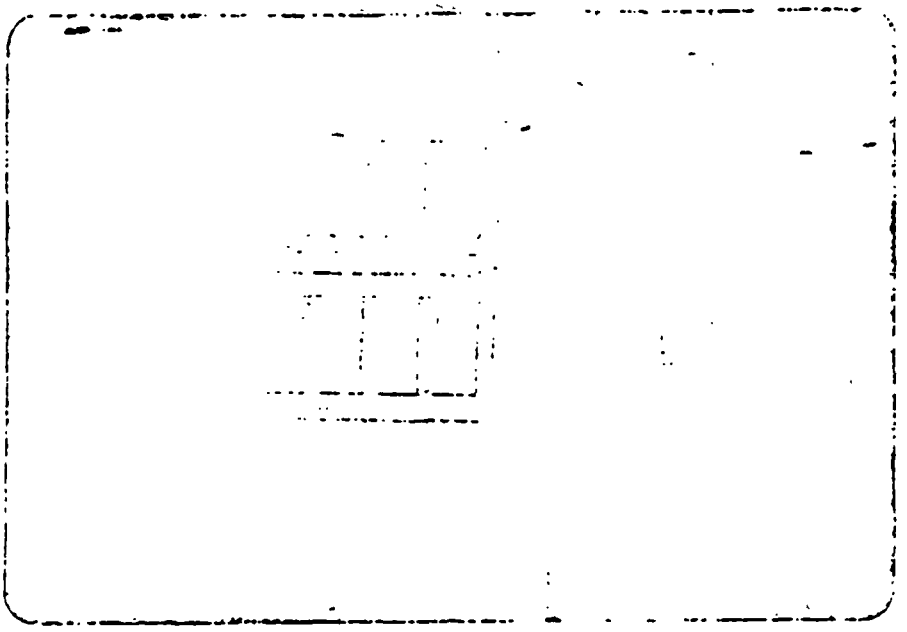
1. Water-drip stain on right side of PCB storage area.
2. Left side of PCB storage area.
3. Far side (back) of PCB storage area.
4. Number 2 substation; soil sample (1) from middle transformer (3).
5. G.E. transformers (8, 9, and 10) next to Mill D substation.
6. G.E. (8,9) and Kuhlman (5,7) transformers next to Mill D substation.
7. Leaking Kuhlman transformer (7); oil (3); and soil (4) taken here.
8. Six PCB large, high-voltage capacitors stored for reuse.
9. Mill C Substation - transformer 11 and 24 large, high-voltage PCB capacitors in use.
10. Outside Mill C - transformer storage area; transformers 13-16.



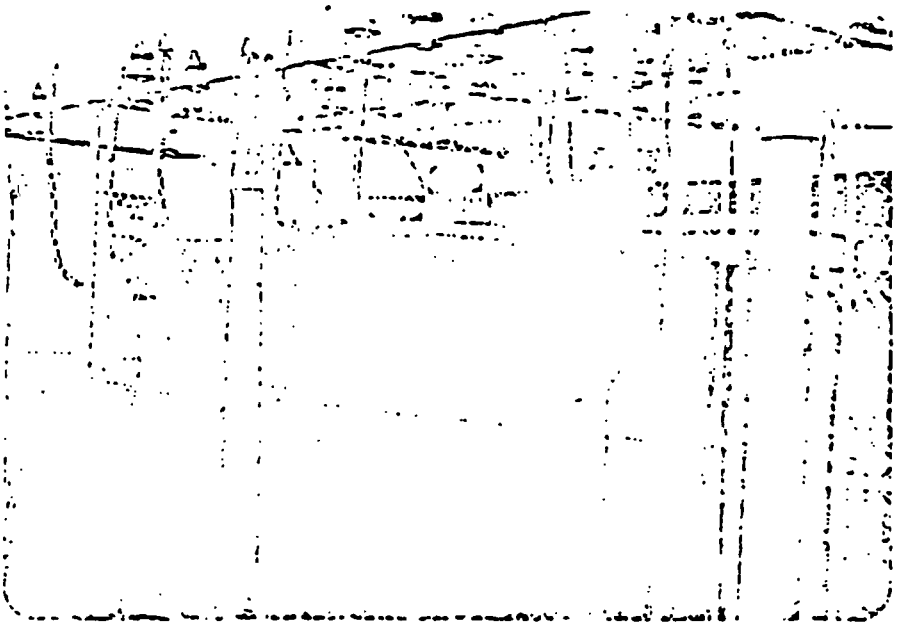
1. Water-drip stain on right side of PCB storage area.



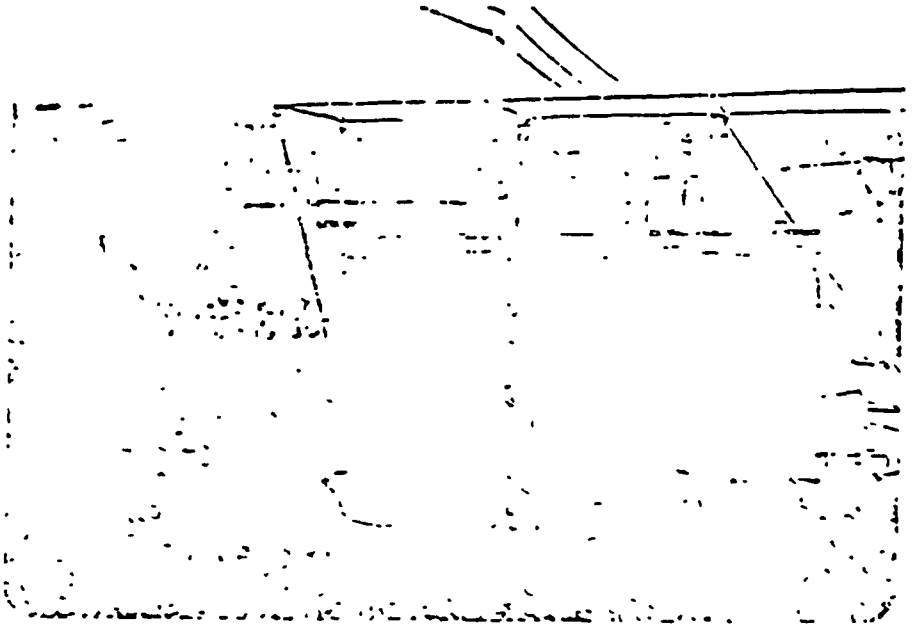
2. Left side of PCB storage area.



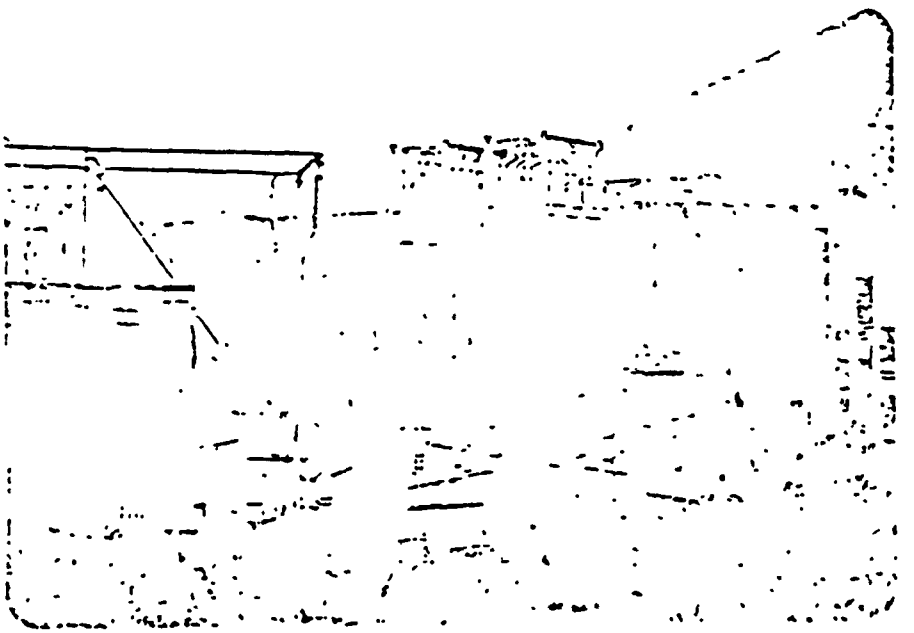
3. Far side (back) of PCB storage area.



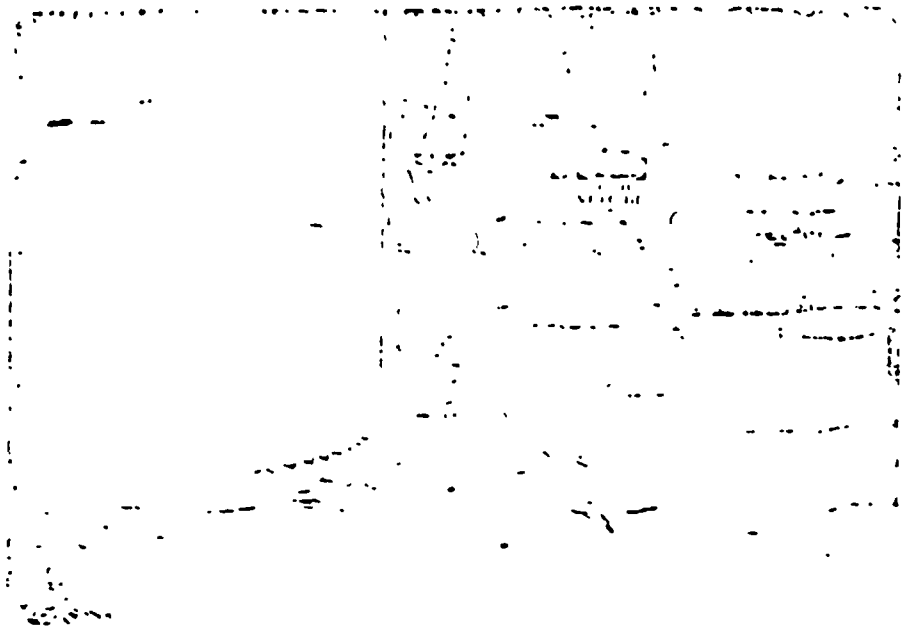
4. Number 2 substation; soil sample (1) from middle transformer (3).



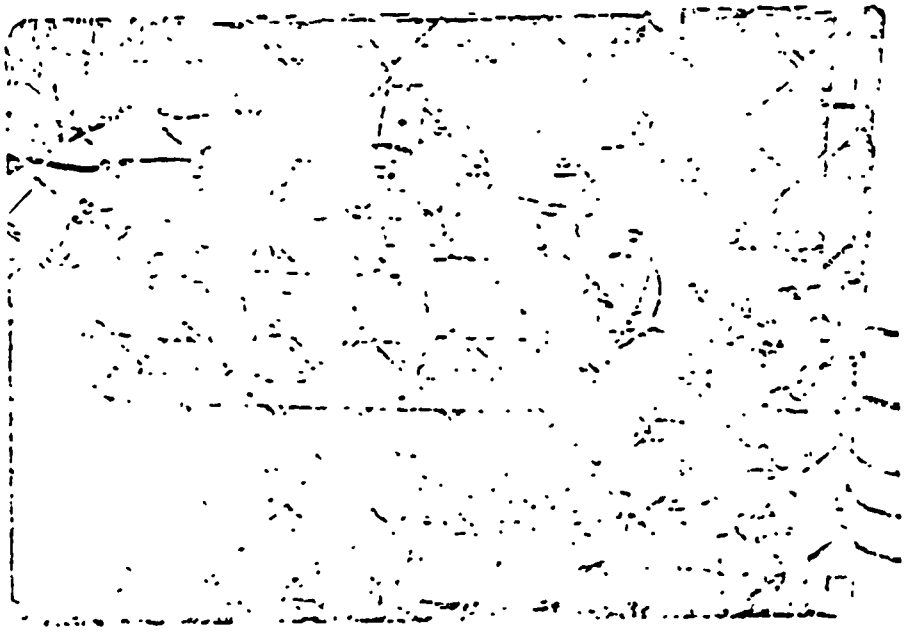
5. G.E. transformers (8,9, and 10) next to Mill D substation.



6. G.E. (8,9) and Kuhlmun (5,7) transformers next to Mill D substation.

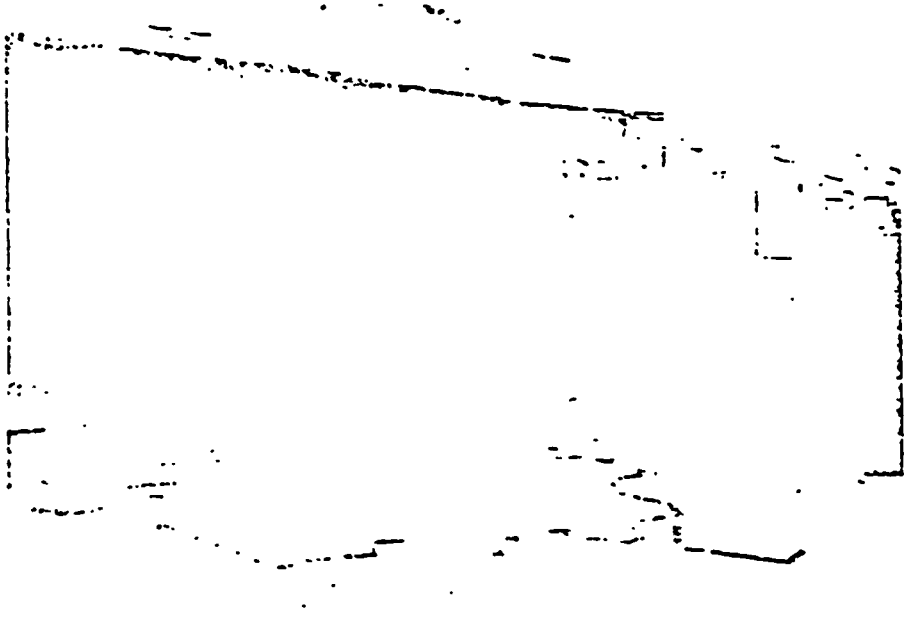


7. Leaking Kuhlman transformer (7); oil (3); and soil (4) taken here.



8. Six PCB large, high-voltage capacitors stored for reuse.

9. Mill C substation - transformer 11 and 24, large, high-voltage PCB capacitors in use.



10. Outside Mill C - transformer storage area; transformers 13-16.

United States Environmental Protection Agency

NOTICE OF INSPECTION

Allied Paper Inc.

Firm Address: 2030 Portage St. Kalamazoo, Mich

Inspector Name and Address: P Schiffman, J Kaunchishi/M — Versar Inc, 6621 Electronic Dr, Springfield Va 22151

Date: 5-12-81

Time:

Inspector's Signature: P Schiffman

Name and Title of Recipient: U.G Stoeffler, Manager Proc Devel

Title: Compliance Auditor

Signature of Recipient: U. G. Stoeffler

REASON FOR INSPECTION

Under the authority of Section 11 of the Toxic Substances Control Act

☑ For the purpose of inspecting (including taking samples, photographs, statements, and other inspection activities) an establishment, facility, or other premises in which chemical substances or mixtures or articles containing same are manufactured, processed or stored, or held before or after their distribution in commerce (including records, files, papers, processes, controls, and facilities) and any conveyance being used to transport chemical substances, mixtures, or articles containing same in connection with their distribution in commerce (including records, files, papers, processes, controls and facilities) bearing on whether the requirements of the Act applicable to the chemical substances, mixtures, or articles within or associated with such premises or conveyance have been complied with.

☐ In addition, this inspection extends to (circle appropriate letters):

(A) Financial data
(B) Sales data
(C) Pricing data
(D) Personnel data
(E) Reserach data

The nature and extent of inspection of such data specified in A through E above as follows:

United States Environmental Protection Agency

TSCA INSPECTION CONFIDENTIALITY NOTICE

Inspector Name: Paul Schoffman - Tekmar/Dietrich

Inspector Address: Versar Inc, 6621 Electronic Dr, Springfield Va 22151

Facility: Allied Paper Inc

Facility Address: 2030 Portage St, Kalamazoo, Mich

Chief Executive Officer of Firm: E.J. Kleinfelder

Title: President

Name of Individual to Whom Notice Given: U.G. Stoeffler

Title: Manager - Process Development

It is possible that EPA will receive public requests for release of the information obtained during inspection of the facility above. Such requests will be handled by EPA in accordance with provisions of the Freedom of Information Act (FOIA), 5 U.S.C. 552, EPA regulations issued thereunder, 40 CFR Part 2, and the Toxic Substances Control Act, Section 14. EPA is required to make inspection data available in response to FOIA requests unless the Administrator of the Agency determines that the data contains information entitled to confidential treatment.

Any or all the information collected by EPA during the inspection may be claimed confidential if it relates to trade secrets or commercial or financial matters that you consider to be confidential. If you make claims of confidentiality, EPA will disclose the information only to the extent, and by means of the procedures, set forth in the regulations (cited above) governing EPA's treatment of confidential information. Among other things, the regulations require that EPA notify you in advance of publicly disclosing any information you have claimed and certified confidential.

To Claim Confidential Information

To claim information confidential, you must certify that each claimed item meets all of the following criteria:

1. Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.

2. The information is not, and has not been, reasonably ascertainable without your company's consent by other persons (other than governmental bodies) by use of legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding).

3. The information is not publicly available elsewhere.

4. Disclosure of the information would cause substantial harm to your company's competitive position.

At the conclusion of the inspection, you will be given a receipt for all documents, samples, and other materials collected. At that time, you may make claims that some or all of the information is confidential and meets the four criteria listed above.

If you are not authorized by your company to make confidentiality claims, this notice will be sent by certified mail, along with the receipt for documents, samples, and other materials to the Chief Executive Officer of your firm within two days of this date. The Chief Executive Officer must return a statement specifying any information which should receive confidential treatment.

The statement from the Chief Executive Officer should be addressed to:

and mailed by registered, return-receipt-requested mail within seven (7) calendar days of receipt of this Notice.

Failure by your firm to submit a written request that information be treated as confidential, either at the completion of the inspection or by the Chief Executive Officer within the seven-day period, will be treated by EPA as a waiver by your company of any claims for confidentiality regarding the inspection data.

If there is no one on the premises of the [illegible] who is authorized to make business confidentiality claims for the firm, a copy of this Notice and other inspection materials will be sent to the company's Chief Executive Officer. If there is another company official who should also receive this information, please indicate below.

To be completed by facility official receiving this notice

I have received and read this Notice.

Name: U.G. Stoeffler

Title: Manager - Process Development

Signature: U.G. Stoeffler

Date: May 12, 1981

Name:

Title:

Address:

United States Environmental Protection Agency

RECEIPT FOR SAMPLES AND DOCUMENTS

Name of Firm: Allied Paper Corp.

Firm Address: 2030 Portage St. Kalamazoo, Mich

Inspector Name: Paul Schaffman - J. Kevin Chilligh

Inspector Address: Versar Inc. 6621 Electronic Dr Spfld Va 22151

Name of Individual: U.G. Stoeffler

Title: Manager - Process Development

Date Collected: 5-12-81

Duplicate Samples Requested and Received: ( ) Yes (X) No

Sample Numbers: 01-16

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Toxic Substance Control Act.

Receipt for the document(s) and/or sample(s) described is hereby acknowledged:

01 - Soil - Number 2 Substation - Westinghouse Transf # 1669063
02 - oil from transf - in storage by Mill D subst. Kuhlmann 934566
03 - oil " " " " " " " " 923057
04 - soil below " unslab " " " " " 923058
05 - soil below slab - Mill D subst trans - Westinghouse - 740 gal 3772574 [illegible]
06 - soil - below trans in storage - outside Mill D - Allis Chalmers - 4767157 455 gallon
07 - soil " " " " " " " - G.E. B975489 425 gal
08 - oil from transf. Old Engine Room A.C. outdoor type - 3A 3228.41
09 - oil " " - Mill C Starch Kitchen - Westinghouse Hipersil 4595273
10 - Hydraulic Oil Mill C - Table Lift #5 -
11 - " " - Swim Roll #5
12 - Size Press " - Size Press #5
13 - Hydraulic Oil " Table Lift #6
14 " Mill D Blade Coater Swim Stack
15 " " Foundation Heads - Blade Coater
16 Waste Oil

Documents
1) Dubois Chemical - Hydraulic Oil (MFC-15) Invoice - 1-26-81
2) PCB Transformer & Capacitor Inventory - 5/4/26/81
3) Rowen & Blair - Transformer testing records - 14 sheets

Signature of Inspector: [signature]

Signature of Owner, Operator, Occupant: U.G. Stoeffler 5/12/81

Title: Compliance Auditor

Title: Mgr. Process Dev.

CHAIN OF CUSTODY RECORD

PROJ NO: 74717 | PROJECT NAME: EPA Compliance Monitoring

SAMPLERS (Signature): [illegible] Sutoffman

STA NO	DATE	TIME	COMP	GRAB	STATION LOCATION	NO. OF CONTAINERS	REMARKS
01 ARI	5-12-81			X	Westing Transf 1669043	1	Sediment
02				X	Kuhlman Transf #1 - Mill P [illegible]	1	Transformer Hydraulic oil
03				X	Kuhlman Transf. #3	1	Transformer oil
04				X	Kuhlman Transf #923088	1	Sediment
05				X	Mill P Transf Westing-3772574	1	Sediment
06				X	A.C. Trans in Storage	1	Sediment
07				X	G.E. Transf 8973459	1	"
08				X	A.C. Transf #3832284	1	Transformer oil
09				X	Westing Transf H295273	1	Transformer oil
10				X	Table Lift - Machine #5	1	Hydraulic oil
11				X	Swim Roll - Machine #5	1	"
12				X	Size Press - Machine #5	1	Hydraulic oil
13				X	Table Lift #6	1	Hydraulic oil
14				X	WMD - Blue Color - Swim Stock	1	Hydraulic oil
15/16				X	Mill P Containment / Waste oil - drum	1 / 1	Hydraulic oil / Waste oil

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by (Signature)	Date / Time	Received by: (Signature)
[illegible]	5-13-81 / 3:15	[illegible]			
Relinquished by: (Signature)	Date / Time	Received by (Signature)	Relinquished by (Signature)	Date / Time	Received by: (Signature)
Relinquished by (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time	Remarks	

Distribution: Original Accompanies Shipment. Copy to Coordinator Field Files

9-0620

ATTACHMENT F

044826

SA

390222
allied paper, inc. - Monarch mill
Kalamazoo 49003
Uses 57 gal in 21 capacitors

Monsanto PCB Sales (1970-1973)

030149 Parker Hannifin Corp. - Pneumatic Div.
601 S. Wilmot St. Otsego 49078
Purchased 5000 lbs Pydraul 312 in 1970 and 2000 lbs in 1971. Pydraul 312 is ordinarily used as for hydraulics/lubricants and is 100% PCB's. Also purchased 2000 lbs Pydraul 312-A in 1971 and 1972 (also for hydraulics/lubricants) which is 100% PCT's

130009 Eaton Corp - engine components Div.
436 N. 20th St, Battle Ck 49016
Purchased 1080 lbs Pydraul A-200B which is used for hydraulics/lubricants It's 100% PCT's.

390343 Brown Co. - service products div. plt II
2050 E. Mich. ave., Kalamazoo 49007
1970 bought 2020 lbs. Inerteen 70-30 It is used as a transformer & capacitor fluid & is 100% PCB's. Also purchased 675 lbs. of Pydraul A1303B

0012723

SA 013481

SA00013481

(from mailing label)

ORM PCB-120. ANNUAL REPORT OF USE OF PCB-CONTAINING CAPACITORS, TRANSFORMERS OR OTHER PCB-PRODUCTS.

NOTE: See page 2 for instructions and complete FORM PCB-110 before completing this form. Do not report manufacture or sale of *PCB-products*, on this page.

1. Did you use PCB-containing capacitors (other than *small capacitors*) in your business during the reporting period? YES ☒ NO ☐

   If yes: Number of capacitors containing PCB 41 UNITS

   Total quantity of PCB-containing fluid in all capacitors 108.5 Lb. ☐ Gal. ☒

   Largest capacitor (total quantity of PCB-containing fluid) 2.9 Lb. ☐ Gal. ☒

2. Did you use PCB-containing transformers (other than *small transformers*) in your business during the reporting period? YES ☒ NO ☐

   If yes: Number of transformers containing PCB 3 UNITS

   Total quantity of PCB-containing fluid in all transformers 1038 Lb. ☐ Gal. ☒

   Largest transformer (total quantity of PCB-containing fluid) 358 Lb. ☐ Gal. ☒

3. Did you use any *PCB-products* other than capacitors and/or transformers during the reporting period? YES ☐ NO ☒
   If yes: Please describe the PCB-containing portion below

   PCB Product Name

   Physical state (check one only) 1 ☐ SOLID 2 ☐ LIQUID 3 ☐ GAS

   Average *PCB* concentration (ppm) . Ppm

   Quantity of PCB per PCB-product Lb ☐ Gal. ☐

   Number of PCB-products used in reporting period UNITS
   Briefly describe the nature of your *use* of the PCB-product.

4. Did you purchase any *PCB* or *PCB-products* during the reporting period? YES ☐ NO ☒
   If yes: Please complete the following.

   Total quantity of PCB-containing portion of each product . Lb. ☐ Gal. ☐

   Number of products UNITS
   Planned use for purchased *PCB* or *PCB-products*

   Name and mailing address of seller

   NAME

   STREET

   CITY/STATE/ZIP

5. Do you have any PCB in inventory and/or storage YES ☐ NO ☒
   If yes: Please complete the following.

   Total quantity of *PCB* material . Lb. ☐ Gal. ☐

   Number of Products UNITS

   Expected use

SA 036911

MONTHLY PCB CAPACITOR INSPECTION REPORT

Revised: 12/82
3/83
4/83
3/84*
4/84**
9/87***

ITEM	MILL	BLDG	VLTG	QUAN	LOCATION AND EQUIPMENT	REMARKS
1	D	3	480	2	E. Wall basement-480 volt bus (#7 couch)	
2	D	3	2400	1	E. Wall basement-#7 fan pump	
3	D	3	2400	1	E. Wall basement-#7 DD West	
5	D	3	2400	1	W. Basement-#9 PM fan pump	
6	D	3	2400	1	W. Basement-#9 PM Aux vac pump	
7	D	3	2400	1	E. Basement-#9 PM couch vac pump	
8	D	3	2400	1	W. Basement-#8 PM fan pump	
9	D	4	480	1	W. End basement (pump)-#8 pulp chest pump	
11	D	4	480	1	S. side base.-480 volt bus. over Portage Creek Big Sewer Pump	
13	D	4	480	4	S. side oper. floor near ceiling #9 center DD	
14	D	4	480	2	S. side oper. floor, top of starter #8 W DD Middle Sprout Waldron (not on top of starter)	
15	D	4	480	4	S. side oper. floor-S. wall #8 W. DD	
16	D	4	2400	1	N. side oper. floor-N. wall #9 W. DD	
17	D	4	2400	1	N. side oper. floor-N. wall wet strength hydrapulper	
18	D	4	2400	1	N. side oper. floor-N. wall #9 EDD	
19	D	4	2400	1	N. side oper. floor-N. wall #8 WDD	
20	D	4	2400	1	N. side oper. floor-N. wall #7 EDD	
21	D	9	480	2	W. side basement B/C coater 480 volt bus	
22	D	10	480	3	W. side basement B/C coater 480 volt bus	
23	D	10	480	2	W. side basement B/C coater B/C drive	
24	D	11	480	3	W. side Portage Creek basement 480 volt bus Katy Mill 480V Rack	
25	D	--	2400	11	W. side Portage Creek outdoors 1500 KVA transformer	
26	D	--	2400	12	W. side Portage Creek outdoors 1500 KVA transformer	
27	G	--	2400	18	S.E. cor. Pwr. Plant outdoors	
29	G	--	2400	1	S.W. cor. basement Pwr. Plant Air Comp.	
30	-	--	2400	6	N. side filter plant on pole	

ITEM	MILL	BLDG.	VLTG.	QUAN.		REMARKS
32	C	33	480	1	Basement wall - 480 volt bus	
33	C	33	2400	1	Basement #5 PM-1st press vac pump	
34	C	33	2400	1	Basement #5 PM couch pump	
35	C	34	2400	1	N. wall beater room #6 - #1 SWDD	
36	C	34	2400	1	N. wall beater room #5 EDD	
37	C	34	2400	1	N. wall beater room #5 MDD	
38	C	34	2400	1	N. wall beater room #6 Jones DD	
39	C	34	2400	1	N. wall beater room #6 Couch	
41	C	23	480	1	Silver H_2O tank W. of Bldg. 23C	
43	C	11	480	1	Basement-approx. center of PM - W. side 480V rack #6	
45**	D	8	480	1	N. wall above #8 winder load center	

* 3/84 shipped approximately 3600# (capacitors in barrels) for disposal 3/84.

** 4/84 added items 45 (omitted from earlier listing)

*** 1/87 shipped approximately 1 barrel of capacitors for disposal 1/87.

Revised: 12/82
3/83
4/83
3/84*
4/84**

MONTHLY PCB CAPACITOR INSPECTION REPORT

ITEM	MILL	BLDG	VLTG	QUAN	LOCATION AND EQUIPMENT	REMARKS
1	D	3	480	2	E. Wall basement-480 volt bus (#7 couch)	
2	D	3	2400	1	E. Wall basement- #7 fan pump	
3	D	3	2400	1	E. Wall basement-#7 DD	
5	D	3	2400	1	W. basement-#9 PM Fan Pump	
6	D	3	2400	1	W. basement-#9 PM Aux vac pump	
7	D	3	2400	1	E. basement-#9 PM, couch vac pump	
8	D	3	2400	1	W. basement-#8 PM, Fan pump	
9	D	4	480	1	W. End basement (pump)	
11	D	4	480	1	S. side base.-480 volt Bus. over Portage Creek	
13	D	4	480	4	S. side oper. floor near ceiling #9 Center DD	
14	D	4	480	2	S. side oper. floor, top of starter #8 W DD	
15	D	4	480	4	S. side oper. floor-S. wall #8 W DD	
16	D	4	2400	3	N. side oper. floor-N. wall #9 W DD	
17	D	4	2400	2	N. side oper. floor-N. wall Wet Strength Hydrapulper	
18	D	4	2400	1	N. side oper. floor-N. wall #9 EDD	
19	D	4	2400	1	N. side oper. floor-N. wall #8 WDD	
20	D	4	2400	1	N. side oper. floor-N. wall #7 EDD	
21	D	9	480	2	W. side basement B/C coater 480 volt bus	
22	D	10	480	3	W. side basement B/C coater 480 volt bus	
23	D	10	480	2	W. side basement B/C coater B/C drive	
24	D	11	480	3	W. side Portage Creek basement 480 volt bus	
25	D	--	2400	12	W. side Portage Creek outdoors 1500 KVA Transformer	
26	D	--	2400	12	W. side Portage Creek outdoors 1500 KVA Transformer	
27	G	--	2400	12	S. E. cor. Pwr Plant outdoors	
28	G	--	2400	7	S. E. cor. Power Plant outdoors	
29	G	--	2400	1	S. W. corner basement Power Plant Air Compressor	
30	-	--	2400	6	N. side Filter Plant on pole	

ITEM	MILL	BLDG	VLTG	QUAN	LOCATION AND EQUIPMENT	REMARKS
32	C	33	480	1	Basement wall - 480 volt Bus	
33	C	33	2400	1	Basement #5 PM-1st Press vac pump	
34	C	33	2400	1	Basement #5 PM Couch Pump	
35	C	34	2400	1	N. Wall Beater Room #6 - #1 SWDD	
36	C	34	2400	1	N. Wall Beater Room #5 EDD	
37	C	34	2400	1	N. Wall Beater Room #5 MDD	
38	C	34	2400	1	N. Wall Beater Room #6, Janes DD	
39	C	34	2400	1	N. Wall Beater Room #6, Couch	
41	C	23	480	1	Silver H_2O Tank W. of Bldg. 23C	
43	C	11	480	1	Basement-Approx. center of PM - W. Side	
~~44~~	~~G~~	~~--~~	~~480~~	~~1~~	~~Spare BFP-Basement under 200 KW Gen.~~	
45**	D	8	480	1	N Wall above #8 winder load center	

* 3/84 shipped approximately 3600# (capacitors in barrels) for disposal 3/84.
** 4/84 added items 45 (omitted from earlier listing)

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Distribution

FROM: Al Vickery

OFFICE:

OFFICE:

SUBJECT: PCB Materials Disposal

DATE: February 24, 1984

Ensco Inc. was issued Allied P. O. No. 55415 dated February 14, 1984 for the disposal of 17 drums of PCB materials. This will clear our PCB disposal storage area of all materials accumulated since October, 1983. These materials must be properly disposed of within 12 months of date in storage.

A-1 Disposal of Plainwell has been issued Allied P. O. No. 55536 to pickup these 17 barrels of PCB materials and deliver to Ensco Inc. in El Dorado, Arkansas. (EPA approved disposal site). A straight bill of lading has been prepared for this approved hazardous waste hauler.

A Michigan manifest has been prepared to accompany the materials through to disposal. Ensco Inc. of Little Rock, Arkansas has furnished two manifests as required by the State of Arkansas. One manifest will accompany the 11 drums of capacitors to 47th and Smith, El Dorado, Arkansas. The other manifest will go with the 6 drums of low level PCB mineral oil to American Road, El Dorado, Arkansas.

Each of the 17 drums has an ORM-E and a PCB caution label affixed.

A-1 Disposal will probably arrange to pickup the drums within the next few weeks.

/kmj

Distribution:

T. Flanagan
D. Eaton
B. Rasmusson
T. Cadwell
J. Buroker
K. Sweet
P. Hagard
J. Waldron
D. C. Kirk
D. Falvey
U. G. Stoeffler
G. Brooks

Shipped 3/28/84 [illegible]

1 IN RE: ENVIRONMENTAL DECLARATORY JUDGMENT ACTIONS
DOCKET NO. UNN L 8573-89
2

3 H. M. HOLDINGS, INC., THE GLIDDEN COMPANY & SMITH	SUPERIOR COURT OF NEW JERSEY LAW DIVISION: UNION COUNTY
4 CORONA CORPORATION,	DOCKET NO. L-96187-87
5 Plaintiffs,	Civil Action
vs.	
6	
LUMBERMENS MUTUAL CASUALTY	
7 COMPANY, et al.,	
8 Defendants.	

9

10

11 The Deposition of ALBERT VICKERY, taken before
12 Michele A. Lantis, CSR-0120, RPR-CM, Certified Shorthand
13 Reporter and Notary Public, at Gerger-Moretti Reporting,
14 520 Comerica Building, Kalamazoo, Michigan on November 13,
15 1992, commencing at or about 9:00 a.m., pursuant to
16 notice.
17
18
19
20
21
22
23
24
25

1 APPEARANCES:

2 MS. WENDY ANDERSON
Howrey & Simon
3 1730 Pennsylvania Avenue, N.W.
Washington, D.C. 20006-4793
4
Appearing on Behalf of the Plaintiffs.
5
MR. DANIEL CUNNINGHAM
6 Tressler, Soderstrom, Maloney & Priess
200 West Adams, Suite 3000
7 Chicago, Illinois 60606

8 Appearing on Behalf of Defendants Lumbermens Mutual
Casualty Co. and American Motorists Insurance Co.
9
MR. MICHAEL OLSAN
10 Connell, Foley & Geiser
85 Livingston Avenue
11 Roseland, New Jersey 07068

12 Appearing on Behalf of Defendant Continental
Casualty Co.
13
PURCELL, RIES, SHANNON, MULCAHY & O'NEILL
14 550 Route 202-206, Suite 210
Bedminster, New Jersey 07921
15 BY: MR. RANDOLPH L. CHRISMON

16 Appearing on Behalf of Hartford Insurance Co.
17
18
19
20
21
22
23
24
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1

I N D E X

2

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23

24

25

1 A No.
2 Q Mr. Vickery, I now am going to show you what we will
3 mark Exhibit Number 5. This is an October 2nd, 1969
4 memo from SCM -- I'm sorry, written by Jack Gilman to
5 Les Stoeffler, and I would ask you to take a look at
6 that for me, please. The Bates number on this is SA
7 034812.
8 (Exhibit Number 5 marked)
9 (Short pause)
10 Q All right. Mr. Vickery, does your name appear at the
11 bottom of this document?
12 A Yes.
13 Q And it indicates that you received a carbon copy, is
14 that correct?
15 A Probably does.
16 Q Okay. Do you recall receiving this document?
17 A I may have.
18 Q Okay. Do you know why you would have been carbon
19 copied on this document?
20 A To be informed.
21 Q Okay. In the first paragraph of the document there
22 is a reference to a chlorine Oliver drop leg?
23 A Yes.
24 Q Are you familiar with that?
25 A I know what they're talking about.

1 Q Can you tell me what the chlorine Oliver drop leg
2 was?
3 A It was the means by which we pulled a vacuum on the
4 chlorine Oliver saveall. In order to pull a vacuum
5 on it we tried to suck the water out of the pulp
6 because it was -- that's the means used to get the
7 water out of the pulp.
8 Q And do you know what happened to that water after you
9 sucked it out of the pulp?
10 A Truthfully, no.
11 Q Okay. Does this document refresh your recollection
12 at all of what happened to that water?
13 A It indicates possibly what did happen to it.
14 Q Okay.
15 A But that wasn't my area and I could have cared less.
16 Q Okay. Mr. Gilman has indicated that the next goal is
17 to send the chlorine drop-leg water to the clarifier
18 instead of to the Portage Creek. Did you have
19 anything to do with implementing that policy?
20 A No.
21 Q All right. In the third paragraph of that document
22 Mr. Gilman indicates that, "I believe that this could
23 be included in the overall $100,000 project for
24 Portage Creek clarification."
25 My question is, did you have anything to do

1 with setting budgets for the amount of money that
2 could be spent to prevent pollution in the creek?
3 A No.
4 Q Do you know if a budget was actually created in which
5 the amount of money that could be spent on pollution
6 was limited?
7 MS. ANDERSON: I think the term that
8 Mr. Gilman was using was creek clarification.
9 Q I guess my question is -- that was a bad question.
10 Did you have anything to do with setting budgets when
11 you were the manager of the engineering department?
12 A As they pertained to capital projects.
13 Q Okay. Did you prepare any budgets for capital
14 projects dealing with preventing waste from going to
15 the creek?
16 A No.
17 Q Okay. Were you involved at all in the project for
18 Portage Creek clarification?
19 MS. ANDERSON: Objection, overly broad.
20 Q Mr. Gilman has referred to a "project for Portage
21 Creek clarification." Do you know what he's
22 referring to there?
23 A Reducing the dissolved solids, suspended solids and
24 the BOD.
25 Q Okay. Mr. Vickery, the next document will be marked

1 programs over the period I was with -- I was on the
2 test program.
3 Q Does that mean that you were assigned to seven
4 different facilities?
5 A From the test program standpoint, yes.
6 Q Okay. How many years did you work for GE altogether?
7 A I think five, more or less.
8 Q When was the first time that you encountered PCB's in
9 any way?
10 A I became aware of the fact there was such a thing as
11 -- we called it Pyranol at the time, but which was a
12 high temperature cooling liquid that was used in
13 transformers.
14 Q Okay.
15 A I became aware of that when I was on the test program
16 with General Electric.
17 Q And why was it that you became aware of it at that
18 time?
19 A One of the tests that I participated in was large
20 transformer tests and this was done in Pittsfield,
21 Massachusetts. Occasionally, once in a while, we
22 would get a large transformer which was filled with
23 Pyranol to perform the performance tests on it, the
24 electrical tests. There was a number of them that
25 were done. And as a part of that why the test

1 supervisor alerted us to the fact that there were
2 certain, I want to say toxic hazards to PCB's and
3 meaning it wasn't something that you drink.
4 Q And you were informed of that when you were working
5 for GE in Pittsfield?
6 A Yes.
7 Q Okay. Do you recall what your supervisor told you
8 about the toxicity of PCB's?
9 A No. Just said don't get it on you if you got any
10 cuts, and if you do, why wash it off good with soap
11 and water, so forth, is about all I can remember.
12 Q Did you have to wear any protective clothing when you
13 were working with PCB's in Pittsfield?
14 A We weren't actually working with it directly. In
15 fact, at no point did we actually ever open it up or
16 expose it. These things were filled and sealed
17 before we got them on the test floor.
18 Q All right.
19 A In fact, most of these tests were done in other
20 areas.
21 Q Okay.
22 A And it probably only happened once or twice while I
23 was on that particular test that one of these came
24 through our test area.
25 Q Okay. Do you recall the name of your supervisor that

1 informed you of the toxicity of PCB's?
2 A Edmondson, E-d-m-o-n-d-s-o-n I think.
3 Q Do you recall his first name?
4 A I think it was Ed. I'm not sure. I could say Ed or
5 Dave or something. I don't recall.
6 Q In response to my question about the name of your
7 supervisor you said it was Edmondson, is it his last
8 name?
9 A That's his last name.
10 Q Okay. So it's not Ed Munson, it's Edmondson?
11 A Yeah, Edmondson was his last name. I don't recall
12 what his first name was or initials were.
13 Q Have you ever come across someone with the initials
14 E. D. Edmondson?
15 A Where did you come up with that?
16 Q Have you ever come across that before?
17 A I don't know. I don't recall. I don't know what his
18 first initials were and that's the only time I ever
19 run across that name.
20 Q Okay. Did anyone else at General Electric ever
21 inform you of the toxicity of PCB's?
22 A No.
23 Q All right. When you later began working at Allied
24 Paper did any of your supervisors talk to you about
25 the toxicity of PCB's, and let's say prior to 1970?

1 A No.
2 Q Okay. After that time did you ever have any
3 discussions with your supervisors about the toxicity
4 of PCB's?
5 A No.
6 Q Mr. Vickery, did there ever come a time when you
7 learned that PCB's were used in carbonless copy
8 paper?
9 A Yes.
10 Q Okay. Did you ever learn that they were also used in
11 some kinds of ink?
12 A In answer to your previous question, carbonless copy
13 paper, the answer has to be no. In inks, yes.
14 Q Okay. When did you learn that PCB's were used in
15 inks?
16 A Sometime in the '70's when the effort was made to
17 identify where all the PCB's in the country were.
18 That was the reason why.
19 Q Okay. Do you recall who would have informed you of
20 the fact that PCB's were used in inks?
21 A No.
22 Q When did you learn that PCB's were in the Portage
23 Creek and Kalamazoo River?
24 A I don't know.
25 Q Okay.

1 SUPERIOR COURT OF NEW JERSEY

2 LAW DIVISION: UNION COUNTY

3

H. M. HOLDINGS, INC.,
4 THE GLIDDEN COMPANY &
SMITH CORONA CORPORATION,

5

6

7 Plaintiffs,

8

9 vs. Docket No:
UNN L 8573-89

10

LUMBERMENS MUTUAL CASUALTY VOLUME I
11 COMPANY, et al,

12

13

14

15

16

Defendants.
17 _____/

18

19

20 The deposition of ERNEST JOHN GILMAN, taken

21 before Patricia G. Moretti, CSR-0930, Certified

22 Shorthand Reporter and Notary Public, at

23 Gerger-Moretti Reporting, 520 Comerica Building,

24 Kalamazoo, Michigan on the 18th day of January, 1993

25 commencing at or about 9:00 a.m., pursuant to notice.

KA04800001

1

2 APPEARANCES

3

4 FOR THE PLAINTIFFS:

5

6 MR. JOHN HEINTZ
7 MR. JEFFREY LENSER
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8 1730 Pennsylvania Avenue, N.W.
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9

10 FOR DEFENDANTS LUMBERMENS MUTUAL
CASUALTY CO. And AMERICAN MOTORISTS
11 INSURANCE COMPANY:

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13 Tressler, Soderstrom,
Maloney & Priess
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16
FOR DEFENDANT CONTINENTAL CASUALTY CO:
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1

2 FOR DEFENDANT HARTFORD ACCIDENT &
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7

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23

24

25

1 A No.
2 Q And if there were an opening in one of the mills
3 adjacent to the creek through which Allied employees
4 were discharging waste materials directly into the
5 creek, under whose authority would that conduct fall?
6 MR. HEINTZ: Objection, calls for
7 speculation.
8 A It would certainly be my responsibility. Now, if you
9 want the direct chain of command I would be happy to
10 give it to you.
11 Q What was the chain of command?
12 A Well, it would come up through the person who first
13 saw it, to his immediate foreman and thence to the
14 superintendent of the mill and thence to me.
15 Q Were you aware of any bypasses at Mill E?
16 MR. HEINTZ: Engineered?
17 MS. HELMS: Engineered bypasses.
18 A No. And I'm not even sure there were any because this
19 was not a paper mill.
20 Q So they didn't have the volumes of water that the
21 other mills had?
22 A No.
23 MS. HELMS: Maybe we could take a break
24 for a minute to talk about whether you need to eat
25 today or whether the rest of us do.

1 THE WITNESS: It's highly recommended.
2 (Off-the-record discussion).
3 Mr. Gilman, with regard to Mill A, could you describe
4 for us the points of bypass which were designed into
5 the Mill A waste effluent system?
6 A The only one that I can recall is at the pumping
7 station or the collection station outside of Mill A,
8 which was a collection point for the waste from the
9 de-inking and the two paper mills.
10 Q How did that bypass operate?
11 A As I recall it was just a pipe.
12 Q That pumping station was in close proximity to Portage
13 Creek, is that right?
14 A That's correct.
15 Q And the pipe just basically went over the creek and
16 discharged at that point?
17 A The bypass?
18 Q Yes.
19 A You said went over the creek?
20 Q Well ---
21 A It wouldn't have to go over.
22 Q Went into the creek?
23 A Went into the creek -- I don't recall the exact design
24 of it right now. The pumps which carried the total
25 effluent from Mills A, C and D to the clarifier were

1 set in a large sump, about the size of this room, and
2 if somehow through breakage of a line or something
3 like that those pumps became flooded, then none of the
4 effluent would be able to go and that would be the
5 reason for having a bypass at that point.
6 Q Meaning because the pumps would not be operating?
7 A Yeah, if they flood they can't operate.
8 Q And then everything goes into the creek?
9 A Everything would go into the creek. I don't recall
10 that ever happening but that would be the reason for
11 having a bypass at that point. That would be a
12 critical point.
13 Q Do you have any knowledge of a system of alarms of
14 warning devices that would be activated or were
15 activated at the Mill A pump station in the event of a
16 bypass?
17 A I don't recall that. Before you write that answer, I
18 don't recall its location, let's put it that way. I
19 know that having read papers in connection with this
20 deposition that there was discussion about installing
21 a warning system. Ward Harrison, who was then
22 president and CEO, was testifying for the Water
23 Resources Commission.
24 Q Mr. Gilman, you just referred to having read papers in
24 preparation for the deposition and I would like you to

V. SUPPLIES

A. The following supplies are available and can be obtained from:

SCM Corporation
Stationery Stores
P.O. Box 4819
Syracuse, NY 13221

Material Hazard Rating Form (SCM Form No. IH-200) - pads of 100.

17" X 22" poster describing MHRP.

Wallet Cards - personal protection index.

B. Labels - Initial supply to get the program started (1000 each of 2" X 2", 4" X 4", 6" X 6" and 8" X 8") are also available from Stationery Stores in Syracuse. Re-ordering of labels may be done with local suppliers. If desired, labels can be re-ordered from Stationery Stores however, there will be a charge back to the plant, as follows:

2" X 2" - $55 per thousand

4" X 4" - $65 per thousand

6" X 6" - $75 per thousand

8" X 8" - $85 per thousand

NATIONAL COUNCIL OF THE PAPER INDUSTRY FOR AIR AND STREAM IMPROVEMENT INC

SURVEY OF FOREST PRODUCTS INDUSTRY EXPERIENCE AND PRACTICES RELATED TO FIRES INVOLVING PCB-CONTAINING ELECTRICAL EQUIPMENT

COMPANY EVALUATION OF THE CONTINUED USE OF PCB-CONTAINING TRANSFORMERS

(For Completion at the Corporate Level)

The question posed in this section is intended to measure the extent of the industry's commitment to the continued use of PCB-containing transformers for the remainder of their useful lives. The information is thought to be of use in framing positions that might be taken in the issue management process. A phase-out is considered to be a scheduled replacement of the equipment. Retrofilling involves exchange of dielectric fluids to reduce PCB concentrations levels below those of regulatory concern.

A. COMPANY IDENTIFICATION

ALLIED PAPER INCORPORATED	Kalamazoo, Mi.	R. R. Eaton
Company	Location	Contact Person

B. EXTENT OF PROGRAMS AIMED AT PHASING OUT PCB-CONTAINING ELECTRICAL EQUIPMENT

(1) Please check all applicable statements.

(a) Yes an accelerated phase-out or retrofill program has been considered or evaluated.

(b) _____ a program for accelerated phaseout or retrofill program is under evaluation.

(c) After evaluation, an accelerated phaseout program was rejected _____ adopted _____.

(d) Yes PCB-containing transformers are periodically phased out at times where electrical systems are upgraded or modified.

(2) No Does a written company policy exist on the phase-out of PCB transformers?

(3) If a written policy exists and can be made available, please include it with your response to this portion of the survey.

Please forward complete responses and supplemental information that can be provided by May 1, 1984 to

Duane Marshall
NCASI
260 Madison Avenue
New York, N.Y. 10016

4/23/84 AEV

SCM ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

file - PCB [redacted]

TO: T. Flanagan

FROM: A. Vickery

OFFICE:

OFFICE:

SUBJECT: PCB Transformers - Bryant Mill

DATE: February 26, 1982

Reference my memo 2/4/82 and your speed letter 2/5/82.

The three mineral oil filled transformers which tested above 50 ppm have been labeled as PCB units.

I obtained a quote to receive and dispose of the two PCB transformers. I have attached a copy.

To eliminate these two PCB transformers we would replace them with two spare existing units which were retained when the old King and Monarch Mills were shut down. There could be preliminary installation of the one for Mill D since I would recommend locating it outdoors and cabling the primary and secondary power to the location of the existing unit in the basement. This would require approximately 24-36 hours (working hours). My estimate of this is approximately $20M to $25M.

The office parking lot unit would be replaced with a similar unit and could be accomplished over a two day weekend period. This cost would be approximately $15M to $20M.

I would recommend having the disposal firm to arrange for the transportation (pick up at Allied). This cost is not included in the disposal proposal. I would estimate this at $1000.

With preliminary planning and cooperation from all parties involved, the turn around would cost approximately $60,000.

br

SCM. ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Dick Eaton

FROM: Al Vickery

RECEIVED
APR 6 1984
R. R. EATON

OFFICE:

OFFICE:

SUBJECT: Transformer PCB Analysis
Kar Lab - Allied P.O.No. 54841

DATE: April 5, 1984

Attached is a copy of the Bryant mill transformers showing the PCB contamination level evaluated using Aroclor Standards (1254). The Mill D coater 1000 KVA* transformer, s/n C168174 has 67 ppm. Since this exceeds 50 it must be labeled as a PCB contaminated unit. By a copy of this memo I am requesting Jim Waldron to do this.

I would recommend we drain and flush this transformer and refill it with new transformer mineral oil. Then this contaminated oil can be disposed of legally. You will note that this unit is located East of Portage Creek just North of the Bryant Street extension. Since this unit does not have a retaining basin a leak (spill) would go directly into Portage Creek.

Two of the three 200 KVA units located West of Portage Creek adjacent to the old engine room also show a level of PCB just under 50 ppm. (s/n 3A3228.5 is 41 ppm and 2A2695 is 37 ppm) Since these units are located over the West bank of Portage Creek and would be disposed of when the old engine room is razed, I suggest we proceed to eliminate this bank re relocating the electrical circuits served by this bank of transformers. The other unit showing a level of PCB just under 50 is the 1500 KVA* s/n 3773574 (32 ppm). This unit should be drained and flushed.

* S/N C168174 - 425 gallons
* S/N 3772574 - 740 gallons

/kmj

Objective

The purpose of this inspection was to document and verify the compliance of Allied Paper Inc. with Federal PCB Disposal and Marking Regulations (40 CFR 761) published in Part VI of the Federal Register on May 31, 1979. The specific objective of this inspection was to document Allied Paper Inc.'s use of PCBs in transformers, capacitors, and hydraulic systems and disposal of PCB items and waste oil.

I. Facility and Responsible Official

Allied Paper Inc.
2030 Portage Street
Kalamazoo, Michigan 49003

U.G. Stoeffler, Manager, Process Development
Phone: (616) 345-7131

II. Inspection Date and Participants

May 12, 1981
Allied Paper Inc. - U.G. Stoeffler, Manager, Process Development
Albert E. Vickery, Manager of Engineering

Versar Inc. - J. Kevin Chisholm, Compliance Auditor
Paul D. Schaffman, Compliance Auditor

III. Inspection Findings

At the time of the inspection, Allied Paper had approximately 50 transformers, of which 39 were in service and 11 were stored for possible reuse. According to facility spokesman, none had been tested by Allied Paper Inc. for PCB contamination.

Nameplates on two of the in-service transformers indicate that they are filled with a PCB fluid. These two transformers both had M$_L$ PCB labels affixed, were surrounded by dikes, and were not leaking during the inspections. Both transformers were included in Allied Paper's PCB Inventory (Attachment No. 1).

Record does not indicate the weight or volume of PCB fluid contained in the two PCB transformers. The Bryant Monthly Capacitor Record lists in-service units, and the Monarch Monthly Capacitor Record lists primarily those capacitors in storage.

On July 20, 1980, Versar received (via EPA Region V) Allied Paper's revised PCB supplement for the Bryant Mill (See Attachment No. 5). All capacitors in service at the Monarch Mill have been added to the Bryant Mill list. This revised PCB supplement shows two PCB transformers containing 698 gallons of PCB fluid and a total of 283 in-service, large low-voltage PCB capacitors. Fifty-six large low-voltage PCB capacitors are reported in storage at location 7C.

IV. Facility Description

Allied Paper Inc. is a subsidiary of SCM Corporation. There are approximately 587 employees at the Kalamazoo plant. Allied Paper uses baled feedstock and blend (stocks and fibers) to make fine papers.

V. Inspection Summary

The inspection team arrived at Allied Paper Inc. at 9:15 on the morning of May 12, 1981. Inspectors presented Mr. Stoeffler with their credentials, a "Notice of Inspection," and a "Notice of Confidentiality," both of which he signed. After a brief discussion of the scope and intent of the inspection, Mr. Stoeffler accompanied the inspection team to Mr. Vickery's office. On route the inspectors observed the General Electric Pyranol PCB transformer (See Table 1 for transformer details). Mr. Vickery explained Allied's PCB inventory of transformers and capacitors. The inspection team obtained documents and information on transformers and capacitors. Mr. Vickery stated that no transformers or capacitors had been disposed of in recent years. He also stated that no testing had been performed on transformers for PCBs and that the PCB transformers were known as such by their nameplates. Almost all of the large capacitors in the plant contained PCBs (approximately half are high-voltage capacitors). Mr. Vickery stated that all the large capacitors are marked with the M PCB labels (See Attachment No. 1 for an inventory of all PCB transformers and capacitors).

ITEM	MILL	BLDG.	VLTG.	QUAN.		REMARKS
32	C	33	480	1	Basement wall - 480 volt bus	
33	C	33	2400	1	Basement #5 PM-1st press vac pump	
34	C	33	2400	1	Basement #5 PM couch pump	
35	C	34	2400	1	N. wall beater room #6 - #1 SWDD	
36	C	34	2400	1	N. wall beater room #5 EDD	
37	C	34	2400	1	N. wall beater room #5 MDD	
38	C	34	2400	1	N. wall beater room #6 Jones DD	
39	C	34	2400	1	N. wall beater room #6 Couch	
41	C	23	480	1	Silver H_2O tank W. of Bldg. 23C	
43	C	11	480	1	Basement-approx. center of PM - W. side 480V rack #6	
45**	D	8	480	1	N. wall above #8 winder load center	

* 3/84 shipped approximately 3600# (capacitors in barrels) for disposal 3/84.

** 4/84 added items 45 (omitted from earlier listing)

*** 1/87 shipped approximately 1 barrel of capacitors for disposal 1/87.

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Distribution

FROM: Al Vickery

OFFICE:

OFFICE:

SUBJECT: PCB Materials Disposal

DATE: February 24, 1984

Ensco Inc. was issued Allied P. O. No. 55415 dated February 14, 1984 for the disposal of 17 drums of PCB materials. This will clear our PCB disposal storage area of all materials accumulated since October, 1983. These materials must be properly disposed of within 12 months of date in storage.

A-1 Disposal of Plainwell has been issued Allied P. O. No. 55536 to pickup these 17 barrels of PCB materials and deliver to Ensco Inc. in El Dorado, Arkansas. (EPA approved disposal site). A straight bill of lading has been prepared for this approved hazardous waste hauler.

A Michigan manifest has been prepared to accompany the materials through to disposal. Ensco Inc. of Little Rock, Arkansas has furnished two manifests as required by the State of Arkansas. One manifest will accompany the 11 drums of capacitors to 47th and Smith, El Dorado, Arkansas. The other manifest will go with the 6 drums of low level PCB mineral oil to American Road, El Dorado, Arkansas.

Each of the 17 drums has an ORM-E and a PCB caution label affixed.

A-1 Disposal will probably arrange to pickup the drums within the next few weeks.

/kmj

Distribution:

T. Flanagan
D. Eaton
B. Rasmusson
T. Cadwell
J. Buroker
K. Sweet
P. Hagard
J. Waldron
D. C. Kirk
D. Falvey
U. G. Stoeffler
G. Brooks

Shipped 3/28/84 [illegible]

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

RECEIVED
MAR 3 1983
R. R. EATON

TO: Distribution

FROM: A. E. Vickery

OFFICE:

OFFICE:

SUBJECT: PCB Disposal - Engineering File B-1322
MR-3018

DATE: March 2, 1983

Purchase order No. 51908 was issued to Ensco Inc. to pick up, transport and dispose of the following items:

1-750 KVA Westinghouse Transformer S/N 6539075
1-75 KVA G. E. Transformer S/N 5499217
1-50 KVAR Capicator # 51F403 (37F591G11)
1- Barrel rags.
1- Barrel (5 gals lab PCB)
36- Barrels of PCB contaminated mineral oil (less than 500 ppm)

Ensco Inc. is furnishing two manifests. One, a straight hazardous waste manifest for the two transformers which will go to Nashville, Tennessee. The other items will be listed on an Arkansas hazardous waste manifest. I (Allied will furnish the Michigan Waste Disposal Manifest (with all of these items listed). These manifests will be given to traffic for preparation.

The Ensco truck will be here Wednesday about 8 or 9 A.M. Allied will be responsible for loading. The 750 KVA transformer is being removed from Mill D basement today (3/2/83) and will be located next to the substation on the West side of Portage Creek. Jim Waldron should move the 75 KVA transformer, the 50 KVAR capacitor, barrel of rags and 5 gals. of lab PCB from Mill C PCB storage area to the West side to be near the 750 KVA transformer. This will make it simpler and straight forward to load all of the items in as short a time as possible.

/kmj

Distribution

T. Flanagan
D. Eaton
B. Rasmusson
T. Cadwell
K. Sweet
P. Hagard
J. Waldron
D. Falvey
A. Vickery
L. Stoeffler
D. C. Kirk
G. Brooks
File

TABLE 4 INCIDENCE OF PCB LEAKAGE BASED ON FINDINGS DURING THE FIRST QUARTER (MAY 11 - AUG. 10, 1981) OF THE INTERIM MEASURES INSPECTION PROGRAM

A. Leakage Occurrence

	Number of Transformers																								No. of Large Capacitors	
	500 kVA or Less				501-1000 kVa				1001-2000 kVa				2001-3000 kVa				3001-5000 kVa				Greater than 5000 kVa					
	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	P	C	N	A	N
1. Of the total number of transformers shown in Table 1-Question 8, how many have been inspected				33				5				3				1				2					169	
2. How many exhibited the designated degree of leakage found during the May 11 to Aug. 10, 1981 inspection program																										
a) No evidence of leaks				24				5				2				1				2					169	
b) Small leaks*				9								1														
c) Moderate leaks*																										
d) Ruptures*																										
e) Explosions																										

*See Definitions for Table 4 - Part A (page 10)

Note: Please describe conditions associated with leakage in Table 4 - Part B

SD 023872

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

WATER RESOURCES COMMISSION

IN THE MATTER OF

Allied Paper, Incorporated

NPDES PERMIT NO. MI 0000779

WRC No.: NC-12-80-04-3738

NOTICE OF NONCOMPLIANCE

TO: Allied Paper Incorporated
Monarch Mill
Kalamazoo, Michigan 49003

Attention: Mr. Ernest J. Gilman, Vice President

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 20, 1974.

PURSUANT to the terms of the aforementioned permit (Part I, Section A.2), any discharge from your facility is limited to the following:

Effluent Characteristics	Outfall No.	Discharge Limitations kg/day Daily Maximum
BOD_5	002	177

Staff of the Environmental Services Division conducted an Industrial Survey on June 24-25, 1980, at the Allied Paper Company, Kalamazoo, Michigan (copy of survey attached). The following problems and discrepancies were noted:

1. The Company exceeded the daily maximum loading permit limitation for BOD_5 (260 kg/day as a permit limit of 177 kg/day).

2. In comparing the survey results with the Monthly Operating Report (MOR) for June 1980, the company's lower BOD_5 loadings on June 24 and 25 were 40% and 54% of the survey results. This difference cannot be attributed to differences in flow as they were similar.

3. The composite samples collected were split with the Company for comparison of analytical results. The company reported a BOD_5 concentration of 57% of the EPB laboratory's reuslt and also reported a higher Suspended Solids concentration.

IT IS THEREFORE ORDERED that a written explanation be submitted to the Chief of the Water Quality Division by not later than January 12, 1981, addressing the problems and discrepancies noted during the Point Source Survey and cited above. The response should include a review of laboratory procedures.

BE ADVISED that failure to comply with the terms and conditions of this Notice of Noncompliance may result in further administrative remedies being instituted.

WATER RESOURCES COMMISSION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Date Issued: December 17, 1980

Robert J. Courchaine
Robert J. Courchaine
Executive Secretary

by: Scott C. Ross
Scott C. Ross, Chief
Industrial Compliance Unit

ADDRESS FOR FURTHER CORRESPONDENCE

D. D. Tummala, Water Quality Specialist
Water Quality Division
P.O. Box 30028
Lansing, Michigan 48909
Telephone: (517) 373-8448

1CTE000K

12/21/81
This notice should not have been sent. The reported values cited within are all within seasonal limits set in NPDES permit.

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

WATER RESOURCES COMMISSION

IN THE MATTER OF — NPDES PERMIT NO. MI 0000779

Allied Paper Incorporated — WRC NO: NC-12-81-05-4129

NOTICE OF NONCOMPLIANCE

To: Allied Paper Incorporated
Monarch Mill
Kalamzoo, MI 49003

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 20, 1974.

PURSUANT to the terms of the aforementioned permit (Part I, Section A.2), any discharge from outfall 002 of your facility is limited to the following:

Effluent Characteristics	Discharge Limitations Daily Maximum - lbs/day
BOD_5	385
Total Suspended Solids	500

The monthly monitoring report submitted for the month of October 1981 shows that your facility exceeded its authorized discharge limits at Outfall 002 according to the following:

Reported Values (lbs/day)

Date Sampled	BOD-5	Total Suspended Solids
10-15-81	616	
10-16-81	527	
10-17-81	574	
10-19-81	435	632
10-20-81	598	545
10-21-81	565	
10-22-81	527	
10-23-81	513	
10-24-81	497	
10-25-81	486	
10-26-81	472	
10-27-81	625	
10-28-81	671	
10-30-81	392	

FURTHER, PURSUANT to the terms of the aforementioned permit (Part II, Section A.1); "All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit."

BE ADVISED that the discharges cited in this Notice of Noncompliance are violations of NPDES Permit No. MI 0000779.

FURTHER PURSUANT to the terms of the aforementioned permit (Part II, Section A.4, Noncompliance Notification): If for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Regional Administrator and the State with the following information, in writing, within five (5) days of becoming aware of such condition:

a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance, including exact dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.

BE ADVISED that the State, to date, has not received proper and timely noncompliance notification for the violations addressed in this Notice of Noncompliance.

IT IS THEREFORE DIRECTED that the Allied Paper Inc. take whatever steps are necessary to achieve and maintain compliance with permit effluent limitations.

IT IS FURTHER DIRECTED that a written explanation be submitted to the Water Quality Division by not later than January 11, 1982 for violations of the final effluent limits cited above. The explanation should also list steps that have been or are being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge, and the reasons for failure to submit noncompliance notification in accordance with Part II, Section A.4 of NPDES Permit No. MI 0000779.

BE ADVISED that failure to comply with the terms and conditions of this Notice of Noncompliance may result in further administrative remedies being instituted.

WATER RESOURCES COMMISSION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Date Issued: December 15, 1981

Robert J. Courchaine
Robert J. Courchaine
Executive Secretary

by: Scott C. Ross
Scott C. Ross, Chief
Compliance Section

ADDRESS FOR FURTHER CORRESPONDENCE

D. D. Tummala, Water Quality Specialist
Water Quality Division
P.O. Box 30028
Lansing, Michigan 48909
Telephone: (517) 373-8448

STATE OF MICHIGAN

WATER RESOURCES COMMISSION

Proceedings Against the ALLIED PAPER :
CORPORATION, an Illinois Corporation, :
KALAMAZOO, MICHIGAN, for Abatement of :
Pollution of KALAMAZOO RIVER :

NOTICE OF DETERMINATION AND HEARING

TO: ALLIED PAPER CORPORATION, KALAMAZOO, MICHIGAN

YOU ARE HEREBY NOTIFIED that the Water Resources Commission, after due consideration of complaints received and of investigations made, is of the opinion and has determined that you are violating the provisions of Act 245, Public Acts of 1929, as amended, in that you have failed and are failing to control the polluting content of wastes discharged by you or permitted by you to be discharged to the Kalamazoo River or its tributary, Portage Creek, from your paper mills located in the City of Kalamazoo, Michigan, which act creates in Kalamazoo River conditions of public nuisance, conditions whereby fish or aquatic life may be destroyed or the growth or propagation thereof be prevented or injuriously affected and conditions which injuriously affect the conducting of lawful occupations involving the use of the said waters for industrial enterprises. The specific violations are as follows:

1. The Allied Paper Corporation discharges or permits to be discharged inadequately treated process wastes from its Kalamazoo paper mills into the Kalamazoo River.

2. The said inadequately treated industrial process wastes contain organic oxygen consuming substances in solution and suspension which in combination with wastes of the same nature discharged from other sources cause depletion or exhaustion of oxygen dissolved in said river waters thereby creating conditions of gross nuisance offensive to sight and smell, conditions injurious to the conducting of the lawful occupation of paper making and conditions whereby fish or aquatic life is destroyed or the growth or propagation thereof is prevented or injuriously affected.

MDNR 003539

YOU ARE FURTHER NOTIFIED that to abate the pollution of Kalamazoo River the Commission has under consideration the adoption of a Final Order of Determination requiring you to comply with the following conditions and restrictions:

1. Commencing October 1, 1964 and continuing thereafter:

   a. Restrict the content of oxygen consuming substances, as measured by the 5-day biochemical oxygen demand, in all wastes discharged to the Kalamazoo River or its tributary, Portage Creek, from your Company's paper manufacturing operations to 14,490 pounds daily.

   b. Continue to meet the requirements of the Final Order of Determination adopted by the Commission on October 24, 1951.

2. All facilities necessary to meet the terms of paragraph 1 (a) hereof shall be designed, constructed and operated in accordance with the following schedule:

   a. On or before February 1, 1962, if facilities are to be provided for treatment jointly with other companies or with a governmental unit, the Company shall certify to the Commission that an engineering firm acceptable to all parties to the joint venture has been engaged with authority to proceed with the preparation of complete construction plans and specifications for the project.

   b. On or before October 1, 1962, the Company shall certify to the Commission that approval of construction plans for facilities, by which it will, acting either independently, jointly with other companies, or with a governmental unit, restrict its waste loading to 14,490 pounds of 5-day biochemical oxygen demand per day, has been obtained from:

      (1) The State Health Commissioner for the necessary facilities to treat mill wastes in combination with municipal sewage; or

      (2) the Chief Engineer of the Commission for the necessary facilities to treat mill wastes independently or in combination with mill wastes of other companies.

   c. On or before March 1, 1963, the Company shall commence or cause to be commenced construction of the aforesaid facilities in accordance with the approved construction plans.

   d. On or before September 1, 1964, the Company shall complete or cause to be completed the construction of facilities in accordance with plans previously approved by the State Health Commissioner or the Chief Engineer of the Commission and shall place said facilities in operation.

MDNR 0035818

3. Failure to meet timely any requirement of the proposed Final Order shall constitute a default of the entire Order.

YOU ARE FURTHER NOTIFIED that a hearing on the facts and above proposed Order will be provided you and held by the Commission at 10:30 a.m., July 26, 1961, in Room 133, Stevens T. Mason Building at Lansing, Michigan, following which consideration will be given to the adoption of a Final Order of Determination for abatement of the pollution herein described. At the aforesaid hearing, evidence of said violation will be presented and you will be provided the opportunity to present such evidence as you desire bearing on the matter. The files and records of the Water Resources Commission pertaining to the aforesaid violation will be available to you for inspection prior to or at the hearing.

This Notice was adopted at the June 22, 1961 meeting of the Commission in accordance with the provisions of Act 245, Public Acts of 1929, as amended by Act 117, Public Acts of 1949, on motion by Mr. Eddy, supported by Mr. McIntyre, and unanimously carried.

PRESENT AND VOTING:

Albert E. Heustis, M.D., State Health Commissioner, Chairman
Gerald E. Eddy, Director of Conservation
George S. McIntyre, Director of Agriculture
Irving Ronk, for State Highway Commissioner

STATE OF MICHIGAN

GEORGE ROMNEY, Governor

DEPARTMENT OF CONSERVATION

RALPH A. MAC MULLAN, Director

CONSERVATION COMMISSION
CARL T. JOHNSON
Chairman
E. M. LAITALA
ROBERT C. McLAUGHLIN
AUGUST SCHOLLE
HARRY H. WHITELEY

WATER RESOURCES COMMISSION
GEORGE F. LIDDLE
Chairman
JOHN E. VOGT
Vice Chairman
B. DALE BALL
GERALD E. EDDY
JAMES V. MURRAY
LYNN F BALDWIN
JIM GILMORE

200 MILL ST., LANSING 48926
Tel. 373-3560

December 13, 1967

Mr. E. J. Gilman
Vice President - Manufacturing
Allied Paper Corp.
Kalamazoo, Michigan 49001

Dear Mr. Gilman:

Our Comprehensive Study Unit is planning a comprehensive re-survey of the Kalamazoo River in 1968, similar to the work which was done in 1956. It is planned to include Portage Creek in our 1968 studies.

Shortly after the first of the year sampling surveys of the streams will be initiated and will be carried out throughout most of the year with a concentrated around-the-clock survey to be conducted sometime during the summer-fall drought period. During the year we will also be carrying out surveys of the various waste sources in the Kalamazoo-Plainwell-Otsego area.

As a prelude to the 1968 studies, we had occasion to be in the Kalamazoo area yesterday (December 12) at which time a group of key personnel of our Comprehensive Study Unit staff were given a tour of the area to orient them as to the location of the various waste sources and their location and pertinent information as to stream sampling locations, etc.

During this tour we noted two matters with respect to the Allied Paper Corporation's waste control operations which should receive your immediate attention. At the Alcott Street Bridge we observed a large by-pass of wastes occurring from the Bryant Mill. It was estimated that this by-pass amounted to approximately 150 gallons per minute.

At the Monarch Mill location, we noted that sludge from the company's sludge storage lagoons located north of Cork Street and east of Portage Creek was topping the dikes at an area located along the creek. It is apparent that there is no capacity left to receive additional sludge in this lagoon.

We would appreciate hearing from you at your earliest convenience as to the reason for the Bryant Mill by-pass, corrective actions taken and the period of time by-passing occurred. It is also requested that you inform

MICHIGAN
WATER-WINTER WONDERLAND

us as to what precautionary measures are planned or being taken to prevent losses of waste sludge to the surface waters and what disposition is planned for the sludges in view of the extremely limited area remaining in the immediate mill areas.

Very truly yours,

WATER RESOURCES COMMISSION

RJC

Robert J. Courchaine
Regional Engineer

RJC:kn
cc: C. Harvey
J. Bohunsky

COPIES TO
P.E.A.S. File
Karl Zollner

State of Michigan
Department of Natural Resources

POLLUTION INVESTIGATION REPORT

P.E.A.S. INCIDENT NO
1505-75

DNR Employee Preparing Report — Name, Division, and phone number	Alleged Violator — Name, title, and phone number.
Roger Przybysz Water Quality Control 363-4856	Allied Paper, Inc. - Kalamazoo 345-7131

1 Type of Problem ☐ Air ☐ Solid Waste ☐ Submerged Lands ☐ Inland Lakes and Streams
☒ Water ☐ Soil Erosion ☐ Flood Plain
☐ Other

2. Statute or Administrative Rules involved:

3. Brief summary of the nature and extent of the problem and the effect of the problem on the environment or natural resources

On December 9, 1975, a discharge pipe broke at the mill D pumping station resulting in an overflow of untreated process water into Portage Creek. This continued for approx. 45 min. befo being noticed. As soon as the problem was observed, all five of the Bryant Div. paper machines were shut down. The broken pipe was valved off and the alternate pump was activated. At this poi some of the paper machines were started. By 7:30 p.m. repairs were complete and operation return to normal. There was no observed affect to fish life. Portage Creek was milky white for a time

4. A. Date of Emmission, Discharge or Alleged Violation: December 9, 1975

B. Time (if known): 12:15 p.m. C. Approximate Location: Portage Creek between Alcott Street and Reed Street

5 Were there any witnesses? ☒ Yes ☐ No Attach names and addresses with a brief summary of what each saw.
Plant personnel

6. Were any photos taken? ☐ Yes ☒ No If yes, identify by whom, how many, dates, and what they depict.

7. Were any samples taken? ☐ Yes ☒ No ☐ NA

Name of Sampler

Was a chain of custody kept on the samples? ☐ Yes ☐ No

What disposition was made of the samples?

Attach analyses of samples

8. Attach any of the following:

☐ A. A narrative report of events including action taken by DNR personnel.

☐ B. Copies of field notes taken of the scene.

☐ C. A rough diagram indicating the point of emmission, discharge or alleged violation, relation to receiving or other waters, air quality, or other natural resources, approximate position of witness, points from which photos were taken with arrows pointing to scene photographed, and points at which samples were taken, if applicable

MDNR 883882

9. State agency personnel who were first notified of problem or complaint:

District #3 personnel

Party Notifying: Les Stoeffler

Date: 12/9/75 Time: 1:30 p.m.

10. Are other State Agencies involved? ☐ Yes ☒ No

If yes, which?

11. Does the alleged violator operate pursuant to a DNR permit, license or administrative order? ☒ Yes ☐ No ☐ N/

If yes, please explain N.P.D.E.S. Permit No. MI0000779

12. Did the alleged violator explain the problem in writing? ☒ Yes ☐ No ☐ NA

If yes, date: December 16, 1975 Copy attached? ☒ Yes ☐ No

Party notified: Chet Harvey, District #3 Engineer

13. Briefly summarize what evidence you believe exists to indicate the alleged violator either knew of the problem and failed t disclose such, or falsified a report:

none

Submitted by (Print): Roger Przybysz

Unit : Enforcement

Signature : Roger Przybysz

Date of Report : 12/23/75

7/5/72

POLLUTION REPORT

Name of ~~xxxx~~ ~~xx~~ stream PORTAGE CREEK County KALAMAZOO Sec. ____ Town 2S Range 11 IN CITY OF KALAMAZOO

Limits of affected area Below Bryant mill pond dam on Alcott Street, downstream into mainstream of Kalamazoo river.

Kind of pollution Paper Mill byproductss, sludge and waste.

Kind and extent of damage Completely wiped out any fish or marine life in portage creek at affected limits of lstream, possibly some in -the river also. Stream appeared to be solid waste, almost mud, dark gray in color.

Behavior and appearance of wildlife observed Saw a few dead fish of no size, mostly river shinners.

Damage started: Date 07-01-72 Time Unknown Ended Date continuing Time ~~07-03-72~~ 1P

Damage to habitat Choked all bank foilage. Turning green material to dead material. Residents complained of -the stench.

Weather: Preceding pollution Clear and Warm, no rain During ~~xxx~~ same

Condition of water: Level seasonal normal Clarity clear Temperature unknown

Suspected source of pollution Bryant mill pond. Allied paper company.

Kind of evidence collected 2 water samples. 1 above cork street (above allied paper company, and 1 below allied at klake street bridge.

Photographs taken by Bradfood Gardinier, Conservation Officer, 11176 E. Miller Dr., Galesburg, Mi. 49053- 665-760

Reported by: Name & address Bill Russell, 411 Lake St., Kalamazoo, Mi. 342-4931

Other witnesses: Name & address Ray J. Russell 411 lake st., kalamazoo

NOTE — CHK ON 7-5-72 10AM — GATE STILL OPEN

Date and hour of inspection: Start 07-03-72 1:15pm Ended Continuing

Department personnel notified:

Name	Title	Date & Time
~~D. Williams~~ Jim Howell	Grand Rapids district W.R. Investigator	07-03-72 3pm

OVKR

gilman
EXHIBIT NO. 131
5.9.93
SHERYL BUSSINGER

0000766

KA04800323

7/5/72

[illegible], called plainwell district office. I went to the [illegible] locations. The gate on the dam at alcott st., north end of bryant pond was open. The pond was completely drained. (about 15 acres.) The thread of the stream could be seen in the pond basin, it was flowing black. I talked w/an operator at the disposal plant at St. Regis paper mill. Now allied company. He said Mr. Per Haggerty, was in charge. [illegible] Another employee said Mr. Von [illegible] Swet, gave the order to open [illegible] called Kalamazoo [illegible] to find out if they [illegible]

Mr. Swet, was evasive, but defended allied paper for the operation, as The culverts passing under alcott street were being going to be repaired, and they had to drian the pond for a time study to see how long x they had to repair the culverts. (The City).

I tx'd district 9, and gave info to W.R. Investigator, Mr. Harvey, on vacation

Personnel responding:

Name	Title	Date & Time

Action taken: Water samples, photographs, specimens collected, etc. Enclosed are 3 color snapshots. 2 Water Samples at Plainwell district office.

Rough estimate of damage:

Species	Size	Number	Other

Initial action taken by investigator: Water samples, photographs, specimens collected, etc.

Investigator's signature Bradford Gardner Date 07-05-72

Original to District Office
(District to prepare and forward required copies)

RECEIVED
CONSERVATION DEPARTMENT
JUL 05 1972
DISTRICT #12, HEADQUARTERS
PLAINWELL, MICHIGAN

0000767

KA04800324

Michigan Department of Public Health
Engineering Division

SOLID WASTE DISPOSAL
EVALUATION REPORT
Inspection Date June 9, 1966

Name of Disposal Facility Bryant Mill

Location East of 2500 Block of south Burdick St. behind Bryant Mill, Kalamazoo, Mich.
street address city township county

Name of Operator Allied Paper Corporation Address 1608 Lake St., Kalamazoo, Michigan

Property Owner Allied Paper Corporation Address 1608 Lake St., Kalamazoo, Michigan

Municipalities from which refuse received

Type of Facility: [ ] Incinerator [ ] Hog Feeding
[X] Sanitary Landfill [ ] Other (spec

( ) indicates compliance (x) noncompliance (–) does not apply

GENERAL REQUIREMENTS

Origin of Waste:
generated on premises ✓ delivered to site
Type of Waste:
general residential
commercial ✓ solid liquid
Plans and Specifications:
plan on file X layout operation conforms to plan

SANITARY LANDFILLS
protection of ground and surface water
equipment emergency equipment
nuisance control responsible director
fire control on-site roads ✓
restricted access ✓ attendant X
dust control paper confined X
spreading of refuse compaction
cell volumes period of cover
final cover ✓ cover maintenance
equipment maintenance burning
salvaging — vermin control
surface water drainage ✓ completion of area
handling and control of hazardous materials

REFUSE BURNERS
employee safety — design —
air pollution — operation —
disposal of ash — fly ash —
general sanitation of plant and surroundings

OTHER FACILITY
specify type None
isolation (nearest residence) miles
vermin control operation
maintenance air pollution
fire control impervious feeding area
disposal of days material nuisance control
employee safety written approval when required
concurred by Michigan Department of Public Health when required

Remarks

1. Cover each day
2. Prepare plan
3. Control blowing paper
4. Keep the mill pond from backing up into the area of the dump.

October 12, 1966
Doesn't appear to be covering daily.

DEPOSITION EXHIBIT
BROOKS #601
6/13/97 CC

BROOKS
EXHIBIT NO. 4
2-12-92
S GERGER

KA04500258

Approved Not Approved

Person interviewed A. E. Vickery Inspected by Fred Weaver, R. S.

Title Manager of Engineering Department Representing Kalamazoo County Health D

5000284

3a

March 5, 1969

Mr. E. J. Gilman, Vice President
Allied Paper Corporation
1608 Lake Street
Kalamazoo, Michigan 49001

Subject: Bryant Mill Disposal Area - Kalamazoo County

Dear Mr. Gilman:

An inspection of your landfill operation on February 27, 1969, revealed that this operation is an open dump and not a sanitary landfill as required by Act 87, P.A. of 1965.

You are hereby notified to cease operating this site as a dump and close the operation, or to immediately change this disposal operation to a sanitary landfill in compliance with the law. If you decide to operate a sanitary landfill, you must submit the enclosed application with a bond and a check for $25.00, license fee, to the Kalamazoo County Health Dept.

It is requested that this site be in complete compliance one way or another within 30 days to avoid legal action by this department.

Very truly yours,

LaRue L. Miller, Chief
Section of Environmental Health
Division of Engineering

By: R. L. Hadfield, Sanitarian
Environmental Health Planning Unit

RLH:LS

Enc.

CC: Walter Ash, Kalamazoo County Health Department

0002383

Michigan Department of Public Health
Engineering Division

SOLID WASTE DISPOSAL
EVALUATION REPORT
Inspection Date 3/11/89

Name of Disposal Facility Allied Paper Inc., Bryant Mill

Location Off S. Burdick St. (street address) Kalamazoo (city) (township) Kalamazoo (county)

Name of Operator Allied Paper Inc. Address 1608 Lake St.

Property Owner Above Address Above

Municipalities from which refuse received above

Type of Facility: [ ] Incinerator [ ] Hog Feeding [X] Sanitary Landfill [ ] Other

( ) indicates compliance (x) noncompliance (–) does not apply

GENERAL REQUIREMENTS

Origin of Waste:
generated on premises ____ delivered to site ✓

Type of Waste:
general ____ residential ____
commercial ✓ solid ____ liquid ____

Plans and Specifications:
plan on file ✓ layout operation conforms to plan ____

SANITARY LANDFILLS

protection of ground and surface water X
equipment ✓ emergency equipment ✓
nuisance control ✓ responsible director ✓
fire control ✓ on-site roads ✓
restricted access ✓ attendant –
dust control ✓ paper confined –
spreading of refuse ✓ compaction ✓
cell volumes – period of cover ✓
final cover ✓ cover maintenance ✓
equipment maintenance ✓ burning ✓
salvaging ✓ vermin control ✓
surface water drainage X completion of area ✓
handling and control of hazardous materials ✓

REFUSE BURNERS

employee safety ____ design ____
air pollution ____ operation ____
disposal of ash ____ fly ash ____
general sanitation of plant and surroundings ____

OTHER FACILITY

specify type ____
isolation (nearest residence) ____ miles
vermin control ____ operation ____
maintenance ____ air pollution ____
fire control ____ impervious feeding area ____
disposal of days material ____ nuisance control ____
employee safety ____ written approval when required ____
concurred by Michigan Department of Public Health when required ____

Remarks

1. Dumping refuse into surface water and within 50 feet adjacent to Portage Creek

2. Lip is not being properly covered.

DEPOSITION EXHIBIT
BROOKS #604
6/13/97 CC

BROOKS
EXHIBIT NO. 7
2-12-92
S GERGER

Person interviewed ____ KA04500261 Inspected by Ash & Goldsmith

Title ____ Representing Kal. County Health

0000431

Michigan Department of Public Health
Engineering Division

Dyst Mill Site

SOLID WASTE DISPOSAL
EVALUATION REPORT
Inspection Date 8/21/69

Name of Disposal Facility Allied Paper Company

Location S. Burdick St. (street address) Kalamazoo (city) (township) Kalamazoo (county)

Name of Operator Allied Address

Property Owner Address

Municipalities from which refuse received

Type of Facility: ☐ Incinerator ☐ Hog Feeding ☒ Sanitary Landfill ☐ Other (spec

(✓) indicates compliance (x) noncompliance (–) does not apply

GENERAL REQUIREMENTS

Origin of Waste:
generated on premises ___ delivered to site ✓
Type of Waste:
general ___ residential ___
commercial ✓ solid ___ liquid ___
Plans and Specifications:
plan on file ___ layout operation conforms to plan ___

SANITARY LANDFILLS

protection of ground and surface water X
equipment ✓ emergency equipment —
nuisance control ✓ responsible director ✓
fire control ✓ on-site roads ✓
restricted access ✓ attendant —
dust control ✓ paper confined ✓
spreading of refuse X compaction X
cell volumes — period of cover ✓
final cover X cover maintenance X
equipment maintenance ✓ burning ✓
salvaging ✓ vermin control ✓
surface water drainage ✓ completion of area ✓
handling and control of hazardous materials ✓

REFUSE BURNERS

employee safety ___ design ___
air pollution ___ operation ___
disposal of ash ___ fly ash ___
general sanitation of plant and surroundings ___

OTHER FACILITY

specify type ___
isolation (nearest residence) ___ miles
vermin control ___ operation ___
maintenance ___ air pollution ___
fire control ___ impervious feeding area ___
disposal of days material ___ nuisance control ___
employee safety ___ written approval when required ___
concurred by Michigan Department of Public Health when required ___

Remarks
1. Open lip
2. Dumping into flood plain

0002380

Approved Not Approved under present conditions

Person interviewed ___ Inspected by Walter Ash & Goldsmith

Title ___ Representing Kal. Co. Health Dept.

D-65.3 6M 6/66

SR 009854

SA00009854

October 7, 1969

Mr. E. J. Gilman
Vice President
Allied Paper Inc.
1608 Lake Street
Kalamazoo, Michigan 49001

Subject: Bryant Mill Disposal Site

Dear Mr. Gilman:

In reviewing our files we find that we have an application, bond, inspection report and engineering plans for the licensing of the Bryant Mill Disposal Site in Kalamazoo County.

According to our information this site is still operating with an open face and refuse is being disposed of into the flood plain. The continued operation of this disposal site without spreading, compacting and covering of refuse on a daily basis constitutes a violation of Act 87, Public Acts of 1965. In view of the fact that these violations have existed for a considerable period of time and that Act 87 has been in effect for over 5 years now it is necessary that this department secure compliance with the state law at this site.

You are therefore requested to appear at the Kalamazoo County Health Department offices at 11:00am October 21, 1969 to discuss why this department should not take legal steps to close the Bryant Mill disposal operation.

Very truly yours,

Fred B. Kellow, Chief
Environmental Health Planning Unit
Section of Environmental Health
Division of Engineering

By: R. L. Hadfield, Sanitarian

RLH:pw

cc: Kalamazoo County Health Department

Gilman
EXHIBIT NO. 60
8-12-97
T. SPARKMAN

Gilman
EXHIBIT NO. 72
1-20-93
P. MORETTI

S000451

KA04800185

NATURAL RESOURCES COMMISSION
E. M. LAITALA
Chairman
CARL T. JOHNSON
ROBERT C. McLAUGHLIN
AUGUST SCHOLLE
HARRY H. WHITELEY

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING, LANSING, MICHIGAN 48926

RALPH A. MAC MULLAN, Director

WATER RESOURCES COMMISSION
STANLEY QUACKENBUSH
Chairman
JOHN H. KITCHEL, M.D.
Vice Chairman
RALPH A. MAC MULLAN
JOHN E. VOGT
JOHN P. WOODFORD
GEORGE F. LIDDLE
ALVIN R. BALDEN

March 8, 1971

CERTIFIED MAIL

Kalamazoo River

Mr. Bert Greendyke
6016 Lovers Lane
Kalamazoo, Michigan 49002

Dear Mr. Greendyke:

Thank you for your recent letter to Mr. Larry Witte of this office concerning the filling on your property in the flood plain of the Portage Creek in Section 10, T3S, R11W, Kalamazoo County.

Please be advised that fill placed within the flood plain of the Portage Creek is in violation of Act 245, Public Acts of 1929, as amended by Act 167, Public Acts of 1968. It is unlawful to fill or grade or permit filling or grading in the flood plains, stream bed or channel of any stream without a valid permit issued by the Water Resources Commission under the provisions of Act 167.

You are hereby ordered to cease filling operations immediately until this matter can be resolved. Staff members will correspond with you in the near future concerning the information which will be required to enable a determination whether the existing illegal fill or any additional filling will have a detrimental effect on flood stages on Portage Creek.

Very truly yours,

WATER RESOURCES COMMISSION

Norman Billings
Assistant Executive Secretary

CAS:pmh

cc: Wm. Laycock, Regional Manager-Region III
Eugene Coulson, District Law Supervisor
✓Chester Harvey, District Engineer

MICHIGAN
THE GREAT LAKE STATE

1-L

MDNR 003544

Michigan Department of Natural Resources
Environmental Protection Bureau
Division of Solid Waste Management

LID WASTE MANAGEMENT
Evaluation Report

Name of Disposal Facility: Allied Paper

Location: Cork St. (Street Address) Kalamazoo (City) (Township) Kalamazoo (County)

Name of Operator: A. E. Vickery Address: 2030 Portage Kalamazoo MI 49003

Property Owner: Allied Paper Inc Address: same

Municipalities from which refuse is received: Waste from Allied Paper

Isolation: (Nearest Residence) _____ (miles) (feet)

Type of Facility: [X] SL (Sanitary Landfill) [ ] PP (Processing Plant)
[ ] TR (Transfer Facility) [ ] CC (Collection Center)

(✓) Indicates Compliance (X) Noncompliance (-) Does not Apply

ITEMS REQUIRED IN ALL FACILITIES (SL, TR, PP, CC):

Plan on File	✓	Operation Conforms to Plan	X
Restricted Access	✓	Salvaging	✓
Burning Restricted	✓	Attendant	✓
Traffic Flow	✓	On-Site Roads	✓

ITEMS REQUIRED IN SL, TR, PP:

Equipment	✓	Equipment Maintenance	✓
Fire Protection	✓	Dust & Odor Control	✓
Hazardous Material	✓	Paper Confined	✓
Vermin Control	✓	General Maintenance	X

ITEMS REQUIRED IN SL ONLY:

Protection of Ground and Surface Water	X	Period of Cover	X
Spreading Refuse	X	Cover Maintenance	X
Compaction	X	Completion of Area	X
Cell Volumes	✓	Surface Water Drainage	X

ITEMS REQUIRED IN TR AND PP ONLY:

Container Construction		Building Enclosed	
Container Removal		Dumping Area	
Storage Area		Daily Log	

ITEMS REQUIRED IN TR, PP, AND CC:
Screening Around Facility _____

REMARKS
(1) Some refuse being dumped outside landfill area (west of N Street)
(2) Material being dumped into water
(3) Material not being compacted
(4) Daily cover not complete, material sticking up through cover, and soil placed on refuse not cover

[ ] Approved
[X] Not Approved

0002369

Person Interviewed _____ Inspected By [signature]

Date 9/26/75 Representing KCHD

R 5504
4/73

Michigan Department of Natu[illegible] Resources
Environmental Protection Bra[illegible]
Division of Solid Waste Management

[illegible]OLID WASTE MANAGEMENT
Evaluation Report

Name of Disposal Facility Allied Paper

Location Cork Street (Street Address) Kalamazoo (City) (Township) Kalamazoo (County)

Name of Operator A. E. Vickery Address 2030 Portage, Kalamazoo, Mi. 49003

Property Owner Allied Paper Inc. Address Same

Municipalities from which refuse is received Waste from Allied Paper

Isolation: (Nearest Residence) _____ (miles) (feet)

Type of Facility: [X] SL (Sanitary Landfill) [ ] PP (Processing Plant)
[ ] TR (Transfer Facility) [ ] CC (Collection Center)

(✓) Indicates Compliance (X) Noncompliance (-) Does not Apply

ITEMS REQUIRED IN ALL FACILITIES (SL, TR, PP, CC):

Plan on File	✓	Operation Conforms to Plan	✓
Restricted Access	✓	Salvaging	-
Burning Restricted	✓	Attendant	-
Traffic Flow	✓	On-Site Roads	✓

ITEMS REQUIRED IN SL, TR, PP:

Equipment	✓	Equipment Maintenance	✓
Fire Protection	✓	Dust & Odor Control	✓
Hazardous Material	✓	Paper Confined	✓
Vermin Control	✓	General Maintenance	✓

ITEMS REQUIRED IN SL ONLY:

Protection of Ground and Surface Water	✓	Period of Cover	✓
Spreading Refuse	✓	Cover Maintenance	X
Compaction	✓	Completion of Area	✓
Cell Volumes	✓	Surface Water Drainage	✓

ITEMS REQUIRED IN TR AND PP ONLY:

Container Construction		Building Enclosed	
Container Removal		Dumping Area	
Storage Area		Daily Log	

ITEMS REQUIRED IN TR, PP, AND CC:
Screening Around Facility _____

REMARKS
Make sure face of fill is covered with 6" compacted soil

[X] Approved Recommend Issuance of license
[ ] Not Approved

0002367

Parties Interviewed _____ Inspected By [signature]
Date 10/26/73 Representing KCHD

R 5504
4/73

SA 009841

SA00009841

Environmental Protection Bureau
Resource Recovery Division

Evaluation Report

Name of Disposal Facility ALLIED PAPER

Location [illegible] (Street Address) [illegible] (City) [illegible] (Township) [illegible] (County)

Name of Operator ALLIED PAPER Address [illegible]

Property Owner ALLIED Address [illegible]

Municipalities from which refuse is received _____

Isolation: (Nearest Residence) _____ (miles) (feet)

Type of Facility: /X/ SL (Sanitary Landfill) /_/ PP (Processing Plant)

/_/ TR (Transfer Facility) /_/ CC (Collection Center)

(✓) Indicates Compliance (X) Noncompliance (-) Does not Apply

ITEMS REQUIRED IN ALL FACILITIES (SL, TR, PP, CC):

Plan on File	✓	Operation Conforms to Plan	✓
Restricted Access	✓	Salvaging	✓
Burning Restricted	✓	Attendant	✓
Traffic Flow	✓	On-Site Roads	✓

ITEMS REQUIRED IN SL, TR, PP:

Equipment	✓	Equipment Maintenance	✓
Fire Protection	✓	Dust & Odor Control	✓
Hazardous Material	✓	Paper Confined	✓
Vermin Control	✓	General Maintenance	✓

ITEMS REQUIRED IN SL ONLY:

Protection of Ground and Surface Water	✓	Period of Cover	✓
Spreading Refuse	✓	Cover Maintenance	✓
Compaction	✓	Completion of Area	✓
Cell Volumes	✓	Surface Water Drainage	✓

ITEMS REQUIRED IN TR AND PP ONLY:

Container Construction		Building Enclosed	
Container Removal		Dumping Area	
Storage Area		Daily Log	

ITEMS REQUIRED IN TR, PP, AND CC:
Screening Around Facility _____

REMARKS

LIP ON EDGE
END NOT COMPLETELY
COVERED AND [illegible]
EROSION.

RECEIVED
RESOURCE RECOVERY D
OCT 2 1980
DISTRICT 9
GRAND RAPIDS

/X/ Approved

/_/ Not Approved

0002357

Person Interviewed _____ Inspected By [illegible]

Date [illegible] Representing [illegible]

R 5504
4/73

SA 009831

SA00009831

Resource Recovery Division

Valuation Report

Name of Disposal Facility ALLIED PAPER

Location CORK ST. (Street Address) KAL. (City) KAL (Township) (County)

Name of Operator ALLIED PAPER Address 2030 PORTAGE

Property Owner ALLIED Address SAME

Municipalities from which refuse is received _____

Isolation: (Nearest Residence) _____ (miles) (feet)

Type of Facility: [X] SL (Sanitary Landfill) [ ] PP (Processing Plant)

[ ] TR (Transfer Facility) [ ] CC (Collection Center)

(✓) Indicates Compliance (X) Noncompliance (-) Does not Apply

ITEMS REQUIRED IN ALL FACILITIES (SL, TR, PP, CC):

Plan on File	✓	Operation Conforms to Plan	✓
Restricted Access	✓	Salvaging	✓
Burning Restricted	✓	Attendant	✓
Traffic Flow	✓	On-Site Roads	✓

ITEMS REQUIRED IN SL, TR, PP:

Equipment	✓	Equipment Maintenance	✓
Fire Protection	✓	Dust & Odor Control	✓
Hazardous Material	✓	Paper Confined	✓
Vermin Control	✓	General Maintenance	✓

ITEMS REQUIRED IN SL ONLY:

Protection of Ground and Surface Water	✓	Period of Cover	✓
Spreading Refuse	✓	Cover Maintenance	X
Compaction	✓	Completion of Area	✓
Cell Volumes	✓	Surface Water Drainage	✓

ITEMS REQUIRED IN TR AND PP ONLY:

Container Construction		Building Enclosed	
Container Removal		Dumping Area	
Storage Area		Daily Log	

ITEMS REQUIRED IN TR, PP, AND CC:

Screening Around Facility _____

REMARKS

X SMALL AMOUNT o RUBBISH EXPOSED ON EAST SIDE.

[X] Approved

[ ] Not Approved

0002347

Person Interviewed MR. BROOKS

Date 3/10/81

Inspected By [signature]

Representing Kal. Co. Health Dept.

R 5504
4/73

Evaluation Report

Name of Disposal Facility ALLIED PAPER

Location CORK ST. (Street Address) KAL. (City) KAL. (Township) (Cou

Name of Operator ALLIED PAPER Address 2020 PORTAGE

Property Owner ALLIED Address

Municipalities from which refuse is received Company

Isolation: (Nearest Residence) _____ (miles) (feet)

Type of Facility: [X] SL (Sanitary Landfill) [ ] PP (Processing Plant)

[ ] TR (Transfer Facility) [ ] CC (Collection Center)

(✓) Indicates Compliance (X) Noncompliance (-) Does not Apply

ITEMS REQUIRED IN ALL FACILITIES (SL, TR, PP, CC):

Plan on File	✓	Operation Conforms to Plan	
Restricted Access	✓	Salvaging	
Burning Restricted	✓	Attendant	
Traffic Flow	✓	On-Site Roads	

ITEMS REQUIRED IN SL, TR, PP:

Equipment	✓	Equipment Maintenance	
Fire Protection	✓	Dust & Odor Control	
Hazardous Material	✓	Paper Confined	
Vermin Control		General Maintenance	

ITEMS REQUIRED IN SL ONLY:

Protection of Ground and Surface Water	✓	Period of Cover	✓
Spreading Refuse	✓	Cover Maintenance	X
Compaction	✓	Completion of Area	✓
Cell Volumes	✓	Surface Water Drainage	✓

ITEMS REQUIRED IN TR AND PP ONLY:

Container Construction		Building Enclosed	
Container Removal		Dumping Area	
Storage Area		Daily Log	

ITEMS REQUIRED IN TR, PP, AND CC:

Screening Around Facility _____

REMARKS

Some erosion on North Lip

[X] Approved

[ ] Not Approved

0002344

Person Interviewed _____ Inspected By [signature]

Date 12/15/81 Representing [signature]

R 5504

SA 009818

SA00009818

L

EVAL .TION REPORT - SANITARY LANDFILL

Michigan Department of Natural Resources - Resource Recovery Division

Name of Facility ALLIED LAND FILL Facility No. 3 A-0100001 1

Location CORK ST. 27 T 25 R 11 KALAMAZOO KALAMAZ.
Main Roads Section No. Township City County

Name of Operator ALLIED PAPER CO Name of Licensee ALLIED PAPER CO

Landfill Type (X) II ( ) III ( ) Other _____

Facility Status ( ) open & licensed (or licensable)
( ) closed & inspecting
( ) unlicensed

Restrictions/Stipulations to consider During Inspection

(C) Indicates Compliance (N) Indicates Noncompliance (-) Does Not Apply

C	A. Protection of Surface Waters
—	B. Hazardous Material/Liquids Materials Authorized for Disposal
N	C. Surface Water Drainage
C	D. Period and Adequacy of Cover
N	E. Completion of Area/Final Cover
C	F. Compaction
—	G. Leachate Collection/Management
N	H. Approved Engineering Plans and Hydrogeologic Evaluation
	I. Operations conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
N	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
N	O. Restricted Access/Attendant
C	P. Traffic Flow
—	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening

REMARKS

(H) IN PROGESS OF BEING DONE

RECEIVED
RESOURCE RECOVERY DIV.
APR 1 6 1982
DISTRICT 9
GRAND RAPIDS

RECEIVED
[illegible] 1982
RESOURCE RECOVERY
[illegible]

0002343

Person Interviewed _____ Date 82/03/11 (yy mm dd) Time of Inspection 3:35 P.M.

Inspected by [illegible] Representing [illegible]

R 5509

RECEIVED
RESOURCE RECOVERY DIV.
3 1982

EVALUATION REPORT - SANITARY LANDFILL

Michigan Department of Natural Resources - Resource Recovery Division

Name of Facility ALLIED LANDFILL Facility No. [illegible] DISTRICT 9

Location CORK ST. 2ND [illegible] KENT GRAND RAPIDS
Main Roads Section No. Township City County

Name of Operator ALLIED PAPER Name of Licensee ALLIED PAPER CO.

Landfill Type (X) II ( ) III ( ) Other _____

Facility Status (X) open & licensed (or licensable)
( ) closed & inspecting
( ) unlicensed

Restrictions/Stipulations to consider During Inspection

(C) Indicates Compliance (N) Indicates Noncompliance (-) Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids Materials Authorized for Disposal
C	C. Surface Water Drainage
C	D. Period and Adequacy of Cover
-	E. Completion of Area/Final Cover
C	F. Compaction
-	G. Leachate Collection/Management
N	H. Approved Engineering Plans and Hydrogeologic Evaluation
C	I. Operations conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
-	L. Gas Migration
-	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening

REMARKS

D) SOME ERROSION AROUND NORTH SIDE WITH SOME EXPOSED REFUSE

0002342

Person Interviewed _____ Date 82/06/17 (yy mm dd) Time of Inspection _____

Inspected by [illegible] Representing [illegible]

R 5509

SH 009816

SA00009816

EVALU ON REPORT - SANITARY LANDFILL

L

Michigan Department of Natural Resources - Resource Recovery Division

Name of Facility ALLIED LAND FILL Facility No. 319-0100001

Location CORK ST. 27 KAL. KAL.
Main Roads Section No. Township City County

Name of Operator ALLIED PAPER CO. Name of Licensee JAME

Landfill Type (X) II ( ) III ( ) Other

Facility Status (X) open & licensed (or licensable)
( ) closed & inspecting
( ) unlicensed

Restrictions/Stipulations to consider During Inspection

(C) Indicates Compliance (N) Indicates Noncompliance (-) Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids Materials Authorized for Disposal
C	C. Surface Water Drainage
N	D. Period and Adequacy of Cover
-	E. Completion of Area/Final Cover
C	F. Compaction
-	G. Leachate Collection/Management
C	H. Approved Engineering Plans and Hydrogeologic Evaluation
C	I. Operations conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
-	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening

REMARKS

D) TWO AREAS ON NORTH LIP HAVE AN ERROSION PROBLEM. (ONE AREA WHERE MONITORING WELL IS LOCATED AND ANOTHER AREA EAST OF IT)

0002341

Person Interviewed _____ Date 8/2/01 9/2/91 (yy mm dd) Time of Inspection 10:25 AM

Inspected by [signature] Representing Kal. Co. Health Dept.

R 5509

SA 009815

SA00009815

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

L

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☐ TYPE III ☐ OTHER _____

NAME OF FACILITY: ALLIED LANDFILL

FACILITY NO.: 39-000011

LOCATION: Main Roads — Section No. — Township — City — County: CORK ST. 27 KAL.

NAME OF OPERATOR: ALLIED PAPER CO.

NAME OF LICENSEE: SAME

STATUS: ☒ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION:

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
N	C. Surface Water Drainage
N	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
—	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

SOME GARBAGE DUMPED IN WASH-OUT AREA ON NORTH LID (MIDDLE)

SOME UNCOVERED PAPER ALONG THE LIP THAT NEED TO BE COVERED.

RECEIVED
GROUNDWATER QUALITY DIV.
OCT 05 1983
DISTRICT 0002338

Inspection item definitions are on back of this form.

PERSON INTERVIEWED:

DATE: YY 83 MM 10 DD 13

TIME OF INSPECTION: 10:21

INSPECTED BY: [signature]

REPRESENTING: Kal. Co. Environ. Health

DISTRIBUTION. Original to Dept. of Natural Resources; 1 copy — Licensee; 1 copy — Certified Health Dept.

R5509 Rev. 7/82

SA00009812

.TMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☒ TYPE II ☐ TYPE III ☐ OTHER _____

AME OF FACILITY	FACILITY NO.
ALLIED LANDFILL	3F21-1010101011

OCATION: Main Roads — Section No — Township — City — County
CLARK ST. SEC. 27 KALAMAZOO

AME OF OPERATOR	NAME OF LICENSEE
ALLIED PAPER CORP.	SAME

TATUS: ☒ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

ESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

C) = Compliance (N) = Noncompliance (—) = Does Not Apply

		REMARKS:
C	A. Protection of Surface Waters	MORE EROSION IN AREA OF TEST WELL ON NORTH BANK
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal	
C	C. Surface Water Drainage	
C	D. Period and Adequacy of Cover	
N	E. Completion of Area/Final Coverage	
C	F. Compaction	
C	G. Leachate Control/Management	
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification	
C	I. Operations Conform to Plan & License Stipulations	
C	J. Vermin Control/Bird Control	
C	K. Blowing Debris, Dust & Odor Control	
C	L. Gas Migration	
C	M. Fire Protection and Restriction of Burning	
C	N. Equipment Adequacy	
C	O. Restricted Access/Attendant	
C	P. Traffic Flow	
C	Q. Salvaging/Scavenging	
C	R. Noise Level	
C	S. Fence/Screening Maintenance	

0002336

nspection item definitions are on back of this form.

ERSON INTERVIEWED	DATE (Y Y M M D D)	TIME OF INSPECTION
	8 4 10 3 2 9	1025

NSPECTED BY	REPRESENTING
[illegible signature]	Kalamazoo Co. Health Dept

ISTRIBUTION. Original: to Dept of Natural Resources, 1 copy — Licensee, 1 copy — Certified Health Dept

R 1509
Rev 7/82

SA 0009810

SA00009810

DE[illegible]MENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

JUL 26 984

E. P. B.

EVALUATION REPORT

SANITARY LANDFILL: ☒ TYPE II ☐ TYPE III ☐ OTHER _____

ME OF FACILITY: ALLIED LAND FILL	FACILITY NO.: 39-0000001
CATION Main Roads — Section No. — Township — City — County: CORK ST. SEC 27 KALAMAZOO	
ME OF OPERATOR: ALLIED PAPER.	NAME OF LICENSEE:

TATUS: ☒ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

STRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

C) = Compliance (N) = Noncompliance (—) = Does Not Apply

		REMARKS:
C	A. Protection of Surface Waters	SOME ERROSION
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal	
C	C. Surface Water Drainage	
C	D. Period and Adequacy of Cover	(HAVE CLOSING PLAN IN)
N	E. Completion of Area/Final Coverage	
C	F. Compaction	
C	G. Leachate Control/Management	
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification	
C	I. Operations Conform to Plan & License Stipulations	
C	J. Vermin Control/Bird Control	
C	K. Blowing Debris, Dust & Odor Control	
C	L. Gas Migration	
C	M. Fire Protection and Restriction of Burning	
C	N. Equipment Adequacy	
C	O. Restricted Access/Attendant	
C	P. Traffic Flow	
C	Q. Salvaging/Scavenging	
C	R. Noise Level	
C	S. Fence/Screening Maintenance	

0002335

nspection item definitions are on back of this form.

ERSON INTERVIEWED	DATE: Y Y M M D D 84 06 29	TIME OF INSPECTION: 1:30
NSPECTED BY: [signature]	REPRESENTING: Kal Co. Health	

Certified Health Dept. R5509

SA 009809

SA00009809

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

L

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY: ALLIED LANDFILL	FACILITY NO.: 3,9,-,0,0,0,0,0,1
LOCATION: Main Roads — Section No. — Township — City — County: CORK ST. SEC 27 KALAMAZOO CITY	
NAME OF OPERATOR: ALLIED PARER	NAME OF LICENSEE:

STATUS: ☐ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION:

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
C	C. Surface Water Drainage
C	D. Period and Adequacy of Cover
N	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
—	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
N	S. Fence/Screening Maintenance

REMARKS:
E) SOME EROSION ON NORTH LIP AGAIN, NEED TO COVER.
N) SOMEONE DUMPED OLD CHAIR ON LANDFILL

RECEIVED
APR 4 1985
GQD-Plainwell

0002332

Inspection item definitions are on back of this form.

PERSON INTERVIEWED:	DATE: Y 8,5 M 0,3 D 1,8	TIME OF INSPECTION: 10:46
INSPECTED BY:	REPRESENTING:	

DISTRIBUTION: Original to Dept. of Natural Resources; 1 copy — Licensee; 1 copy — Certified Health Dept.

R5609
Rev. 7/82

SH 009806

SA00009806

File
Allied Paper

STATE OF MICHIGAN

JAMES J. BLANCHARD, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING
BOX 30028
LANSING, MI 48909

RONALD O. SKOOG, Director

NATURAL RESOURCES COMMISSION
THOMAS J. ANDERSON
E. R. CAROLLO
MARLENE J. FLUHARTY
STEPHEN F. MONSMA
O. STEWART MYERS
RAYMOND POUPORE
HARRY H. WHITELEY

February 3, 1986

Mr. Jon F. DeWitt
Varnum, Riddering, Schmidt & Howlett
171 Monroe Avenue, N.W.
Suite 800
Grand Rapids, Michigan 49503

Dear Mr. DeWitt:

This is in response to your letter of January 16, 1986. After review of your letter, including the documents referenced in your letter, we are still of the opinion that Allied Paper Company is not in compliance with the permit requirement contained in the NPDES permit issued January 17, 1985.

You have apparently complied with the 14 day notification requirement, which states that within 14 days following a requirement for a specific action, a written statement for compliance shall be filed. Nevertheless, the company continues to remain in violation of Special Condition 6, the requirement to submit and receive approval of a Program for Effective Residual Management (PERM) by June 30, 1985.

The notification statement filed by the Company and the reasons cited for the Company's inability to meet the June 30, 1985, date have been, and will continue to be considered by the Department in determining the appropriate enforcement response to that violation. I trust this explains the Department's position on this matter. If you have any questions, please feel free to contact me.

Sincerely

Paul D. Zugger, Chief
Surface Water Quality Division
517-373-1949

RECEIVED
FEB 00 1986
ENVIRONMENTAL ENFORCEMENT DIVISION

cc: Mr. Steven Schuesler
Mr. Donald Inman
Mr. Paul Blakeslee

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

L

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☐ TYPE III ☐ OTHER _____

NAME OF FACILITY	FACILITY NO
ALLIED LANDFILL	39-0000011

LOCATION Main Roads — Section No — Township — City — County
CORK ST. JEC 27 KAL- CO.

NAME OF OPERATOR	NAME OF LICENSEE
ALLIED PAPER	

STATUS: ☒ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
N	C. Surface Water Drainage
C	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
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C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

C. SOME ERROSION ON NORTH-WEST PORTION OF LIP.

(MIXTURE OF PAPER MILL WASTE AND FLY ASH HAS NOT STARTED.)

000326

Inspection item definitions are on back of this form.

PERSON INTERVIEWED	DATE (Y Y M M D D)	TIME OF INSPECTION
MARTIN SMITH	8 6 0 3 2 7	9:45 A.M

INSPECTED BY	REPRESENTING
[illegible]	[illegible] Co. Health

SA 030624

SA00030624

C RTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

EVALUATION REPORT

[redacted] ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY	FACILITY NO.
Allied Paper Landfill	39-000000

LOCATION Main Roads — Section No. — Township — City — County
Cork St. Section 27 Kalamazoo - Kalamazoo

NAME OF OPERATOR	NAME OF LICENSEE
Allied Paper Co.	Same.

STATUS: ☒ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
N	C. Surface Water Drainage
N	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
N	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:
C) ponding of water noted on west side of fill adjacent to Rail road tracks - provide grading to eliminate such an occurrance.
D, H) noted piles of fly ash. ~~blowing all over~~ contents of piles blowing all over. Fly ash was to be mixed with sludge and used as cover - continue with this plan, or cease collection of fly ash and remove piles now present. - Further noted leachate on ground from fly ash due to inadequate cover.

0002325

Inspection item definitions are on back of this form.

PERSON INTERVIEWED	DATE (YY MM DD)	TIME OF INSPECTION
	87 03 24	1 15/pm

INSPECTED BY	REPRESENTING
Patrick Kramer Tim Akers	Health Protection Bur. Kal. Co. Dept of Human Service

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RM09 Rev 7/88

SA 001766

SA00001766

TOMAS LEEP
ENVIRONMENTAL QUALITY MANAGER
PLAINWELL DISTRICT SUPERVISOR
waste Mngt ~~HAZARDOUS WASTE~~ DIVISION
(616) 685 9886
621 N 10TH STREET
P O BOX 355 PLAINWELL MI 49080
FOR POLLUTION EMERGENCY 1 800 292-4706
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

DNR

Per 4 pm
7 /87
from Tomas Leep
WASTE [illegible]

CERTIFIED MAIL

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

In the matter of:

Allied Paper, Incorporated
2030 Portage Street
Kalamazoo, Michigan

License No. 7024

Attention: Mr. Richard Eaton, Manager
Utilities, Maintenance and Engineering

NOTICE OF DENIAL OF RENEWAL
OF SOLID WASTE DISPOSAL AREA LICENSE

1. The Solid Waste Management Act, 1978 PA 641, MCL 299.401 et seq: MSA 13.29(1) et seq, (hereinafter the Solid Waste Management Act) vests the Department of Natural Resources (hereinafter DNR) with jurisdiction to issue a license for the maintenance and operation of a disposal area within this state. The purpose and intent of the Solid Waste Management Act, supra, is to protect the public health and environment and to provide for the regulation and maintenance of solid waste.

2. The Solid Waste Management Act, supra, provides that a person shall not conduct, manage, maintain, or operate a disposal area within this state without a license from the Director of the DNR. MCL 299.413; MSA 13.29(13).

3. Allied Paper, Incorporated, (hereinafter "Allied") owns and operates a solid waste disposal area located in Section 27 of Kalamazoo Township, Kalamazoo County.

4. On February 8, 1985, the Director of the DNR issued a solid waste disposal area license (License No. 7024) permitting Allied to operate a Type III sanitary landfill. The expiration date for this Type III license was February 8, 1987.

5. The approved solid waste disposal area covered by License No. 7024 is described as follows:

> Part of the Southeast quarter of Section 27, Township 2 South, Range 11 West, City of Kalamazoo, Kalamazoo County, Michigan, more particularly described as: Commencing at the Southeast corner of Section 27, Township 2 South, Range 11 West; thence South 89°-48'05" West, 1,731.80 feet along the South line of said Section; thence North 1,157.57 feet for the place of [illegible]; thence North 03°-36'-14" West, 584.83 feet;

SA-049231

thence North 77°-05'-14" East, 192.42 feet; thence South 45°-49'-35" East, 311.29 feet; thence North 66°-08'-59" East, 296.89 feet; thence South 58°-30'-47" East, 417.61 feet; thence South 72°-43'-00" West, 1,049.09 feet to the place of beginning, containing 7.8 acres.

6 On February 2, 1987, Allied submitted an application for renewal of License No. 7024.

7. Allied has installed groundwater monitoring wells around the perimeter of the landfill.

8. On March 3, 1986, the DNR staff collected samples from Monitoring Wells No. 1, 2, 3 and No. 5 and split these samples with representatives of Allied. The results of the analysis by the Department of these samples identified the presence of polychlorinated biphenyls (PCBs) in the groundwater at a concentration of .52 parts per billion (ppb) from Monitoring Well No. 3 and .557 ppb from Monitoring Well No. 5. Monitoring Wells No. 3 and 5 are downgradient of the landfill.

9. The presence of PCBs in the groundwater at the concentrations described in paragraph 8, above, demonstrates contamination of the groundwater and is a violation of Section 6(a) of 1929 PA 245, as amended, the Water Resources Commission Act, which prohibits any discharge which is or may become injurious to the water of the State which is a violation of Rule 299.4306(2) of the Solid Waste Management Act. In addition, under the provisions of the Michigan Environmental Protection Act, 1979, PA 127, unlawful pollution, impairment, destruction or degradation to the resources of the State is occurring or is likely to occur if operation of this site is continued.

10. An onsite inspection by staff of the Kalamazoo County Health Department on March 24, 1987, as well as onsite inspections by DNR staff on February 23, and March 24, 1987, and an aerial inspection by DNR staff on April 30, 1987, confirm that Allied has disposed of waste material outside the area covered by License No. 7024. This is a violation of Section 10 and Section 13 of the Solid Waste Management Act.

11. Based upon the foregoing, DNR staff has determined that the construction and operation of the subject disposal area by Allied has been and is in substantial and continued violation of the Solid Waste Management Act, supra, and the administrative rules promulgated thereunder; the Water Resources Commission Act, supra, and the administrative rules promulgated thereunder; and the Thomas J. Anderson, Gordon Rockwell Environmental Protection Act, 1970 PA 127, MCL 691.1201 et seq; MSA 14.528 (201) et seq.

THEREFORE, BE ADVISED that the application for renewal of Solid Waste Disposal Area License No. 7024 is hereby denied pursuant to Section 17(1) of the Solid Waste Management Act.

The denial of this application for renewal of Solid Waste Disposal Area License No. 7024 is without prejudice to Allied to submit a second application for renewal. Such application must adequately address the groundwater contamination referred to above and shall include as a minimum the following:

A. The results of a hydrogeologic study, conducted according to procedures approved by the DNR, which identifies the horizontal and vertical extent and characteristics of groundwater contamination that has resulted from all past and present landfill operations at this site.

B. The results of a soils study, conducted according to procedures approved by the DNR, which determines the vertical and horizontal extent of any contamination of soils in and surrounding the refuse-filled area.

C. A remedial action plan, including a schedule for implementation, acceptable to the DNR, to remove and dispose of contaminated soils or sludges, to restore the groundwater to its natural condition, and to prevent any further contamination of the groundwater.

Enclosed is your original license application. Note that Section 13(4) of the Solid Waste Management Act states, "An applicant for an operating license, within three (3) months after denial, may resubmit the application together with additional information or corrections as are necessary to address the reasons for denial, without being required to pay an additional application fee."

This notice does not constitute a release from, nor a waiver of liabilities for any violations or environmental damages which have resulted or may result from past current, or future operation and/or maintenance of the landfill.

This notice is immediately effective on May 1, 1987.

Dated: 5-1-87

By: Gordon E. Guyer, Director
ACTING Department of Natural Resources

cc: Mr. Donald L. Inman
Mr. Stewart Freeman
Mr. Thomas Emery — 517-373-7545
Mr. Gary Guenther

DEPARTMENT OF NATURAL RESOURCES
RESOURCE RECOVERY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY: Allied Paper
FACILITY NO: 39-000000

LOCATION Main Roads — Section No — Township — City — County
Cork Street, Sect 27 Kalamazoo

NAME OF OPERATOR: Allied Paper
NAME OF LICENSEE: Allied Paper

STATUS: ☐ Open & Licensed ☐ Closed & Inspecting ☑ Unlicensed

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
X	C. Surface Water Drainage
C	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

Ponding of water observed north of active fill area. Fill area shall be graded as to eliminate this ponding problem.

Fill was being deposited within marked boundries, but definitely encroaching the boundry line of south side of fill area

Elavation markers needed as to ascertain compliance with fill area requirements

0002315

RECEIVED APR 15 1988

Inspection item definitions are on back of this form.

PERSON INTERVIEWED	DATE	TIME ARRIVED
George Brooks	8 10 3 2 9	9 AM

INSPECTED BY	REPRESENTING
Wm Spear	Kal County Human Services

DISTRIBUTION Original to Dept. of Natural Resources, 1 copy — Licensee, 1 copy — Certified Health Dept.

R1409 Rev 7/82

SH 001756

SA00001756

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE•KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

3a

April 13, 1988

Mr. Richard Eaton
Manager, Utilities, Maintenance & Engineering
Allied Paper, Inc.
P.O. Box 2528
Kalamazoo, MI 49003

RE: Allied Paper Type III Landfill

Dear Mr. Eaton:

On March 29, 1988, I visited your facility to evaluate compliance with Michigan's Solid Waste Management Act (P.A. 641, 1978, as amended).

Based upon the inspection, it has been determined that the facility was not operating in compliance with the following requirements:

Ponding of water observed north of active fill area. Fill area shall be graded as to eliminate this ponding problem.
Fill was being deposited within marked boundries, but definitely encroaching the boundry line of south side of fill area.
Elevation markers needed as to ascertain compliance with fill area requirements.

It is requested that you make arrangements to correct this problem.

If you have questions regarding this matter, please feel free to contact me at 383-8803.

Written under the direction and supervision of Patrick Krause, Manager of Environmental Health Section. PK

Sincerely,

William Speeter

William Speeter, R.S.
Registered Sanitarian
Environmental Health Section

RECEIVED
APR 15 1988
WMD-PLAINWELL

Enclosure

cc: Lynn Spurr, Michigan Department of Natural Resources

0002314

7-7-8

Tom,
Your copies of the inspection, as we discussed.
John Hratnol 7/7

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERV
418 WEST KALAMAZOO AV
PHONE (616) 383-8888

June 23, 1989

Performance Paper Company
ATTN: Mr. Richard Eaton
Manager, Utilities, Maintenance & Engineering
P. O. Box 2528
Kalamazoo, Michigan 49003

RE: Performance Paper Company Type III Landfill

Dear Mr. Eaton:

On June 19, 1989, I visited your facility to evaluate compliance with Michigan's Solid Waste Management Act (P.A. 641, 1978, as amended).

Based upon the inspection, it has been determined that the facility was not operating in compliance with the following requirements:

> This landfill site appeared to be in good operating condition as of June 19, 1989; however, heavy rains have eroded an area of the Northwest corner of this landfill. Eroded area's adjacent to the landfill indicate possible surface water drainage from off the landfill site into the adjoining wetlands. Our office would like information regarding your plans for eliminating this problem.

It is requested that you make arrangements to correct this problem. If you have questions regarding this matter, please feel free to contact me at 383-8863.

Written under the direction and supervision of Patrick Krause, Manager of Environmental Health Section.

Sincerely,

Wm T. Speeter

William Speeter, R.S.
Environmental Health

encl.

cc: Lynn Spurr Michgian Dept. of Natural Resources

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE•KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

March 31, 1987

Mr. R. Richard Eaton
Manager, Utilities, Maintenance & Engineering
Allied Paper Incorporated
P.O. Box 2528
Kalamazoo, MI 49003

Dear Mr. Eaton:

Enclosed you will find a copy of the evaluation report for the Allied Paper Landfill. As indicated on the report, our inspection of March 24, 1987 revealed the following:

1) Ponding of water was taking place on the west side of the fill area. This area needs to be graded to eliminate any standing water.
2) We noted that piles of fly ash had been deposited on the site. This fly ash was being blown around the site by the wind. Further, we noted leachate seeping from these piles on the ground below. As noted on the evaluation report, this fly ash needs to be mixed with paper mill sludge and used as cover material or removed from the property.

We will await notification from you as to when these items have been corrected. If you have any questions, please feel free to contact me at 383-8942.

Sincerely,

Patrick Krause, R.S.
Assistant Director of Environmental Health Section,
Health Protection Bureau
Kalamazoo County Department of Human Services

cc: Richard Sadowski

PK/blb

0002324

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE • KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

April 3, 1990

Fretco Inc.
Thomas E. Flanagan
1107 Edgemoor
Kalamazoo, Michigan 49008

RE: Allied Paper Company

Dear Mr. Flanagan:

On March 30, 1990 I conducted an inspection of your facility located at Cork Street Section 27. The inspection was conducted under the authority of Michigan's Solid Waste Management Act, 1978 P.A. 641 as amended (Act 641). Following is the specific violation of Act 641 discovered during the inspection:

> Spring rains have eroded the banks of certain areas of this landfill site. Provide a surface water drainage system that will prevent erosion or washing of the fill as required by the Michigan Solid Waste Management Act 1978 P. A. 641 as amended Rule 299.4315 (13).

It is requested that you respond to this office by April 20, 1990 documenting actions taken to resolve this violation.

If you have any questions regarding this letter, please feel free to contact me at 383-8863.

Sincerely,

Wm Speeter

William Speeter, R.S.
Environmental Health

WS:gjd

encl.

c: Lynn Spurr, MDNR

0002229

ROUNDWATER QUALITY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY: Allied Paper Type III Landfill	FACILITY NO: 39-000001
LOCATION Main Roads — Section No — Township — City — County: Cork Street Sec 27 Kalamazoo	
NAME OF OPERATOR: Allied Paper	NAME OF LICENSEE: Allied Paper

STATUS ☐ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed OPERATING UNDER CONSENT ORDER

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
N	C. Surface Water Drainage
C	D Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K Blowing Debris, Dust & Odor Control
C	L Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N Equipment Adequacy
C	O Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

C.) RAINS HAVE ERRODED THE BANKS OF CERTAIN AREA'S OF THIS LANDFILL SITE PROVIDE A SURFACE WATER DRAINAGE SYSTEM THAT WILL PREVENT EROSION OR WASHING OF THE FILL AS REQUIRED BY THE MICHIGAN SOLID WASTE MANAGEMENT ACT 1978 PA 641 AS AMENDED Rule 299 4315 (13)

Inspection item definitions are on back of this form

PERSON INTERVIEWED	DATE (Y Y M M D D)	TIME OF INSPECTION
Thomas Flanagan	9 0 0 5 0 8	11 AM

INSPECTED BY	REPRESENTING
Wm. T. Spegter	Kalamazoo County Human Services

DISTRIBUTION Original to Dept of Natural Resources, 1 copy — Licensee, 1 copy — Certified Health Dept

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SA 001726

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STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GROUNDWATER QUALITY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY	FACILITY NO
ALLIED PAPER COMPANY	39-1010101C

LOCATION Main Roads — Section No — Township — City — County
CORE STREET SEC 27 KALAMAZOO

NAME OF OPERATOR	NAME OF LICENSEE
ALLIED PAPER COMPANY	ALLIED PAPER COMPANY

STATUS: ☐ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed OPERATING UNDER CONSENT ORDER

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters	REMARKS:
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal	ON 1-31-90 THIS LANDFILL SITE APPEARED TO BE IN GOOD OPERATING CONDITION
C	C. Surface Water Drainage	
C	D. Period and Adequacy of Cover	
C	E. Completion of Area/Final Coverage	
C	F. Compaction	
C	G. Leachate Control/Management	
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification	
C	I. Operations Conform to Plan & License Stipulations	
C	J Vermin Control/Bird Control	
C	K. Blowing Debris, Dust & Odor Control	
C	L. Gas Migration	HEAVY RAINS HAVE ERODED THE BANKS
C	M. Fire Protection and Restriction of Burning	OF CERTAIN AREAS OF THE LANDFILL
C	N. Equipment Adequacy	SITE.
C	O. Restricted Access/Attendant	
C	P. Traffic Flow	
C	Q. Salvaging/Scavenging	
C	R. Noise Level	
C	S. Fence/Screening Maintenance	

RECEIVED FEB 15 1990

0002261 MD-PLAINWFI

Inspection item definitions are on back of this form.

PERSON INTERVIEWED	DATE	TIME OF INSPECTION
MR THOMAS FLANAGAN	Y Y M M D D 9 0 0 1 3 1	11 AM

INSPECTED BY	REPRESENTING
WM. SPEETER	KALAMAZOO COUNTY HUMAN SERVICES

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Rev 3/83

SA 001729

SA00001729

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
GROUNDWATER QUALITY DIVISION

EVALUATION REPORT

SANITARY LANDFILL: ☐ TYPE II ☒ TYPE III ☐ OTHER _____

NAME OF FACILITY: Allied Paper Type III Landfill Site	FACILITY NO: 39-000016
LOCATION Main Roads – Section No – Township – City – County: Cork Street Sec 27 Kalamazoo	
NAME OF OPERATOR: Allied Paper	NAME OF LICENSEE: Allied Paper

STATUS: ☐ Open & Licensed ☐ Closed & Inspecting ☐ Unlicensed — Operating under consent order

RESTRICTIONS/STIPULATIONS TO CONSIDER DURING INSPECTION

(C) = Compliance (N) = Noncompliance (—) = Does Not Apply

C	A. Protection of Surface Waters
C	B. Hazardous Material/Liquids/Sewage Materials Prohibited for Disposal
N	C. Surface Water Drainage
C	D. Period and Adequacy of Cover
C	E. Completion of Area/Final Coverage
C	F. Compaction
C	G. Leachate Control/Management
C	H. Engineering Plans, Hydrogeologic Evaluation & Construction Certification
C	I. Operations Conform to Plan & License Stipulations
C	J. Vermin Control/Bird Control
C	K. Blowing Debris, Dust & Odor Control
C	L. Gas Migration
C	M. Fire Protection and Restriction of Burning
C	N. Equipment Adequacy
C	O. Restricted Access/Attendant
C	P. Traffic Flow
C	Q. Salvaging/Scavenging
C	R. Noise Level
C	S. Fence/Screening Maintenance

REMARKS:

C) Spring rains have eroded the banks of certain areas of this landfill site. Provide a surface water drainage system that will prevent erosion or washing of the fill as required by the Michigan Solid Waste Management Act 1978 PA 641 as amended Rule 299.4315 (13)

00210235

Inspection item definitions are on back of this form

PERSON INTERVIEWED	DATE (Y Y M M D D)	TIME OF INSPECTION
Thomas Hansen	9 0 0 3 3 0	10:30 AM

INSPECTED BY	REPRESENTING
W. T. Spencer	Kalamazoo County Human Services

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SA 006248

SA00006248

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE • KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

Tom R
Rick R.
file 3a

May 15, 1990

Fretco Inc.
Thomas E. Flanagan
1107 Edgemoor
Kalamazoo, Michigan 49008

Re: Allied Paper Company

Dear Mr. Flanagan:

On May 8, 1990 I conducted an inspection of your facility located at Cork Street Section 27. The inspection was conducted under the authority of Michigan's Solid Waste Management Act, 1978 P.A. 641 as amended (Act 641). Following is the specific violation of Act 641 discovered during the inspection:

> Springs rains have erroded the banks of certain areas of this landfill site. Provide a surface water drainage system that will prevent erosion or washing of the fill as required by the Michigan Solid Waste Management Act 1978 P.A. 641 as amended Rule 299.4315 (13).

Our office has received the work plan regarding the remediation of this violation. We request that our office be advised of the progress as this plan is implemented.

If you have any questions regarding this letter, please feel free to contact me at 383-8863.

Sincerely,

WM Speeter

William Speeter, R.S.
Environmental Health

WS/mjm

Enc.

c.c. Lynn Spurr, MDNR

RECEIVED
MAY 18 1990

MMD-PLAINWEI · 0002232

Providing Mental Health, Public Health, Substance Abuse, Job Training, Transportation and Serves as the Community Action Agency.

KALAMAZOO COUNTY GOVERNMENT

HUMAN SERVICES DEPARTMENT

418 WEST KALAMAZOO AVENUE • KALAMAZOO, MICHIGAN 49007
PHONE (616) 383-8888

April 3, 1990

Fretco Inc.
Thomas E. Flanagan
1107 Edgemoor
Kalamazoo, Michigan 49008

RE: Allied Paper Company

Dear Mr. Flanagan:

On March 30, 1990 I conducted an inspection of your facility located at Cork Street Section 27. The inspection was conducted under the authority of Michigan's Solid Waste Management Act, 1978 P.A. 641 as amended (Act 641). Following is the specific violation of Act 641 discovered during the inspection:

> Spring rains have eroded the banks of certain areas of this landfill site. Provide a surface water drainage system that will prevent erosion or washing of the fill as required by the Michigan Solid Waste Management Act 1978 P. A. 641 as amended Rule 299.4315 (13).

It is requested that you respond to this office by April 20, 1990 documenting actions taken to resolve this violation.

If you have any questions regarding this letter, please feel free to contact me at 383-8863.

Sincerely,

Wm Speeter

William Speeter, R.S.
Environmental Health

WS:gjd

encl.

c: Lynn Spurr, MDNR

0010236

Providing Mental Health, Public Health, Substance Abuse, Job Training, Transportation and Serves as the Community Action Agency.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION V

In Re:	)	
	)	
ALLIED PAPER, INC. Kalamazoo, Michigan	)	Complaint and Notice of Opportunity for Hearing
	)	
	)	TSCA—V— C-061

COMPLAINT

This is a civil administrative action instituted pursuant to Section 16(a) of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2615(a). The complainant is the Director, Waste Management Division, Region V, United States Environmental Protection Agency (U.S. EPA). The Respondent is Allied Paper, Incorporated, which is and at all times hereinafter referred to in this Complaint was a corporation incorporated under the laws of the State of Michigan and has a place of business at 2030 Portage Street, Kalamazoo, Michigan 49003.

This Complaint serves as a notice of the Director's preliminary determination that Respondent has violated Section 6 and Section 15 of TSCA, 15 U.S.C. Section 2605 and 2614, as follows:

Count 1

1. On May 12, 1981, contractors retained by U.S. EPA conducted inspections of the above-referenced facility, owned and operated by Allied Paper, Inc.

2. During this inspection, the inspectors observed a transformer, in use, leaking an oily substance, which upon analysis proved to contain 280 ppm PCBs.

3. Leakage of PCBs constitutes an uncontrolled discharge which is an improper disposal of PCBs, in violation of Section 15 of TSCA, 40 CFR § 761.10(a) and (d)(1) and Interim regulations promulgated at 46 Federal Register 16094 (March 10, 1981).

Count 2

1. On May 12, 1981, contractors retained by U.S. EPA conducted inspections of the above-referenced facility, and observed a transformer, in storages, leaking an oily substances which upon analysis, proved to contain 140 ppm PCBs.

2. Leakage of PCBs in storage constitutes improper storage, in violation of Section 15 of TSCA, 40 CFR § 761.42 and 761.30(a), and Interim regulations promulgated at 46 Federal Register 16094 (March 10, 1981).

II

PROPOSED CIVIL PENALTY

Section 16 of TSCA, 15 U.S.C. § 2615, and the regulations promulgated thereunder, 40 CFR Part 761, authorize a civil penalty of up to twenty-five thousand dollars ($25,000) per day for each violation of the Act. Based on the facts presented in Section I above, and on the nature, circumstances, extent and gravity of the above-cited violation, as well as Respondent's ability to pay, effect on its ability to continue in business, history of prior violations and degree of culpability, the following penalty is determined to be appropriate and is hereby proposed for the subject violation:

COUNT 1	
15 U.S.C. Section 2614(1)	$3,000.00
COUNT 2	
15 U.S.C. Section 2614(1)	$ 500.00
	$3,500.00 TOTAL

Payment of this penalty may be made by certified or cashier's check, payable to the United States of America, and remitted to:

Accounts Receivable Clerk
(SMF-14)
U.S. Environmental Protection Agency
230 South Dearborn Street
Chicago, Illinois 60604

The penalties proposed in this complaint were derived by applying the factors enumerated above to the particular allegations that constitute the violations charged in this action. The reasoning for each assessment is explained in detail in the "Guidelines for Assessment of Civil Penalties Under Section 16 of the Toxic Substances Control Act; PCB Penalty Policy" which appears in the Federal Register on September 10, 1980 at 45 Fed. Reg. 59770.

III

OPPORTUNITY TO REQUEST A HEARING

As provided in TSCA Section 16(a), and in accordance with the Administrative Procedure Act (5 U.S.C. § 552 et seq.), you have the right to request a hearing to contest any factual allegation contained in this Complaint, or to contest the appropriateness of the amount of the proposed penalty. In the event that you wish to request a hearing; and to avoid being found in default, you must file a written answer to this Complaint with request the Regional Hearing Clerk (5C-26), EPA Region V, 230 South Dearborn Street, Chicago, Illinois 60604, within twenty (20) days of receipt of this Complaint. Said answer should clearly and directly admit, deny, or explain each of the factual allegations contained in the Complaint with respect to which Respondent has any knowledge; or which shall clearly state that respondent has no knowledge as to particular factual allegations in the Complaint. The Answer shall also state:

1. These circumstances or arguments which are alleged to constitute the grounds of defense;

2. The facts which Respondent intends to place at issue in the hearing. The denial of any material fact or the raising of any affirmative defense shall be construed as a request for a hearing. Failure to deny any of

the factual allegations in this Complaint constitutes admission of the undenied allegations. A copy of your Answer must be served on Ms. Marian H. Neudel, Attorney, Office of Enforcement Counsel, 230 South Dearborn Street, Chicago, Illinois 60604. Hearings held in the assessment of this Civil Penalty will be conducted in accordance with the provisions of the Consolidated Rules of Practice, 40 CFR Part 22, a copy of which has been attached to this Complaint.

If you fail to file a written answer and request for hearing within twenty days of service of this Complaint, such failure constitutes a binding admission of all allegations made in the Complaint and a waiver of your right to a hearing under TSCA. A Default Order may thereafter be issued by the Regional Administrator, and the civil penalty proposed herein shall become due and payable without further proceedings.

IV

SETTLEMENT CONFERENCE

Whether or not you request a hearing, an informal conference may be requested in order to discuss the facts of this case and to arrive at settlement. To request a settlement conference, please write to Ms. Marian H. Neudel, at the above listed address, or call her at (312) 353-2094.

Please note that a request for an informal settlement conference does not extend the twenty (20) day period during which a written answer and request for a hearing must be submitted. The informal conference procedure may be pursued as an alternative to and simultaneously with the adjudicatory hearing procedure.

U.S. EPA encourages all parties against whom a civil penalty is proposed, to pursue the possibilities of settlement as a result of informal conference. However, no penalty reduction will be made simply because such a conference is held. Any settlement which may be reached as a result of such conference shall be embodied in a written Consent Agreement and Final Order by the Regional Administrator U.S. EPA, Region V. The issuance of such a Consent Agreement shall constitute a waiver of your right to request a hearing on any matter stipulated to therein. If you have neither effected a settlement by informal conference nor requested a hearing within the 20 day time period allowed by this Notice, the above penalties will be assessed without further proceedings, and you will be notified that the penalties have become due and payable.

Basil G. Constantelos
Director, Waste Management Division
United States Environmental
Protection Agency
Region V

Date: May 16, 1982

the penalty phase of the proceedings, although the decision on which Dow faces a penalty is still under interlocutory appeal.

Harwood held a conference June 24 with EPA and the firm on the agency's insistence that the case be returned to the matter of a penalty. Although Dow objected to a July deadline for responding to the interrogatories, it agreed to the Aug. 9 date.

The interrogatories date back to August 1981, when the agency and company were embroiled in arguments over a penalty to fit Dow's violation. The company was found guilty in 1980 of violating the polychlorinated biphenyls rules for shipping monochlorinated biphenyls in concentrations over the PCB rule limit (Current Report, Sept. 26, 1980, p. 817).

The Toxic Substances Control Act requires penalties to be set according to several indices, such as the firm's history of compliance and ability to pay, and it is for this reason that EPA served the interrogatories.

After nearly a year of wrangling between the agency and company over a penalty in the case, Dow last fall won the right to appeal the decision against it (Oct. 9, 1981, p. 749). Events up to that point were then held in check.

The appeal still has not been decided by the judicial officer. Recently, EPA attorneys took matters in their own hands and simultaneously asked the judicial officer if the Dow appeal had not been automatically dismissed and filed a motion with Harwood to have Dow respond to the 1981 interrogatories (May 7, p. 228).

The judicial officer responded that the case had not been automatically decided (June 18, p. 390).

Harwood indicated he did not believe a decision from the judicial officer necessarily would resolve the pending penalty question. He stated in his report on the EPA/Dow conference that "a ruling by the judicial officer on the interlocutory appeal would not automatically stay the Aug. 9 date" for answers to the agency interrogatories. If either party wants a stay, it will have to ask for one, Harwood said.

Enforcement

TRANSFORMER SELF-INSPECTION VIOLATIONS ALLEGED IN TWO EPA REGIONAL COMPLAINTS

Two complaints for alleged violations of the polychlorinated biphenyls interim inspection measures were filed by Environmental Protection Agency regional offices recently.

One, filed June 17, claimed Murphy Oil Corp., Meraux, La., failed to inspect three PCB transformers for leaks at least once every three months, as required by the agency's transformer self-inspection rule. A fine of $13,000 was proposed for improper use of PCBs.

The other complaint, filed May 18, alleged that Allied Paper Inc., Kalamazoo, Mich., owned two transformers that were leaking PCBs during an EPA inspection, in violation of the self-inspection measures as well as other sections of the Toxic Substances Control Act. The regional office proposed a $3,500 fine for improper storage and disposal.

Both complaints also cited violations of provisions other than the self-inspection measures. The Murphy Oil citation asked a total of $29,000 and included separate counts of improper storage of PCBs and failure to develop and maintain records in addition to the alleged interim measures violation.

The Allied Paper citation referred to provisions of TSCA other than the interim measures in each count, so it was not clear how much of a violation the regional office believed existed under the interim measures alone.

The complaints are among the first filed for alleged violations of the self-inspection procedures.

The measures were issued by EPA March 10, 1981, requiring owners or operators of PCB-contaminated transformers to inspect their equipment at least every three months, starting May 11, 1981 (Current Report, March 13, 1981, p. 1581).

They were stop-gap measures to accommodate a 1980 court decision that found EPA's previous exclusions to the PCB ban rule were inadequately supported with data (Oct. 31, 1980, p. 986).

Inspection Findings

The complaint against Murphy Oil, a petroleum refinery, said EPA inspectors visited the premises March 4 and 5. It said the firm had three PCB transformers in service, three in storage for disposal, 48 high voltage PCB capacitors in service, and three five-gallon cans of PCB fluid in storage for disposal.

The three transformers in use contained 3,315 kilograms of PCBs, but had not been inspected at least once quarterly since Aug. 10, the complaint said. That was the last date by which the first quarterly inspections should have taken place under the EPA measure.

The firm also lacked records required for in-service PCB transformers under the interim measures, according to the complaint.

Other alleged violations were that Murphy Oil failed to contain its stored fluids and transformers and lacked records on all the equipment.

The complaint against Allied Paper said one of the two leaking transformers was in use and the other in storage. The in-service unit was leaking 280 parts per million PCBs, and the other 140 ppm PCBs, it said.

The leak from the in-service unit constituted an uncontrolled discharge or improper disposal, violating Section 15 of TSCA, 40 CFR §761.10(a) and (d)(1) and the interim regulations, the complaint said.

The other leak constituted improper storage, violating Section 15 of TSCA, 40 CFR Sections 761.42 and 761.30(a), and the interim measures, the complaint said.

Hazardous Waste

UNIFORM MANIFEST PROPOSAL CRITICIZED BY STATE, INDUSTRY COMMENTERS TO MTB

The uniform manifest for transporting hazardous wastes proposed by the Transportation Department's Materials Transportation Bureau and the Environmental Protection Agency drew harsh criticism from industry and state commenters to MTB.

This criticism differed from the supportive comments received earlier by MTB (Current Report, May 7, p. 232).

The Wisconsin Department of Natural Resources said it opposed the proposal because it would preempt alternative manifest requirements for transporters and because the information recorded on the manifests would not provide for sound management.

The department said the proposal would do little to solve the problems of intrastate movement of hazardous wastes and would present a high probability of "functional failure." Further, the proposal would not achieve the goals of Subtitle C of the Resource Conservation and Recovery Act, would not recognize state needs, and would be contrary to the Reagan Administration philosophy of limited federal intervention.

SA-048416

0148-7973/82/$00 50

ALLIED PAPER INCORPORATED
SUBSIDIARY OF SCM CORPORATION

INTER-OFFICE MEMO

TO: Tom Flanagan

FROM: U. G. Stoeffler

OFFICE: Manufacturing

OFFICE: Research & Development

SUBJECT: Status Report on USEPA's TOSCA Complaint

DATE: July 21, 1982

CONFIDENTIAL

The initial complaint and notice of opportunity for hearing from USEPA Region V office was received June 16, 1982, concerning alleged violations noted in an inspection by Verser, an E.P.A. contractor, on May 12, 1981, at Allied Paper's Kalamazoo facility. Dave Kirk contacted Appleton Paper and got their attorney's input and a copy of their PCB complaint from USEPA. Dave contacted Tom Riley in New York and then sent him all the aforementioned data together with a full account of the inspection team's activities of May 12, 1981, as recalled by all the participants at Allied. The Kar Laboratory analyses of transformer fluid sampling subsequent to the May 12, 1981, inspection, we also sent. Copies of the draft answer and actual answer sent to USEPA Region V on July 6, 1982, were received by Dave Kirk from Andrew Perellis and Joseph Wright, respectively, of Rooks, Pitts, Fullagan, and Prust Law Offices. The answer addressed the complaint counts and requested a hearing. On July 12th a copy of the BNA Chemical Regulation Reporter, Page 445, was sent to Dave from the Appleton Paper attorney, which mentioned the EPA complaint filed against Allied Paper. I checked with Tom Riley's office this morning and he has received no further communications on this whole matter since the issuance of the letter answering the complaint.

U. G. Stoeffler
Research & Development

UGS/mh
cc: D. C. Kirk

AP 14

Document Predesignated for Stoeffler

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST
CHICAGO ILLINOIS 60604

REPLY TO ATTENTION OF

November 10, 1982

Joseph S. Wright, Jr., Esquire
Andrew H. Perellis, Esquire
Rooks, Pitts, Fullagar and Poust
Xerox Centre, Suite 1500
55 West Monroe Street
Chicago, Illinois 60603

Re: Allied Paper, Inc.; TSCA-V-C-061

Enclosed is a fully executed copy of the Consent Agreement and Final Order which you sent to me for review and appropriate signatures. The original was filed with the Regional Hearing Clerk. As provided for in the Order, your client, Allied Paper, Inc. is to forward by cashier's or certified check, the amount of THREE HUNDRED DOLLARS ($300) within twenty days of your receipt of this letter. The check should be made payable to the Treasurer of the United States of America, and should be mailed to Mary Langer, Regional Hearing Clerk (5C-16), United States Environmental Protection Agency, 230 South Dearborn Street, Chicago, Illinois 60604. Failure to remit payment will result in referral of this matter to the United States attorney for collection. If you have any questions, you can call me at 886-6663. Thank you for your cooperation.

Sincerely yours,

Elizabeth Maxwell

Elizabeth Maxwell
Assistant Regional Counsel

Enclosure

cc: Regional Hearing Clerk (5C-16) w/original CAFO
Judge Gerald Harwood
Office of Administrative Law Judges (A-110)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

In Re:	)	
	)	
ALLIED PAPER, INC., KALAMAZOO, MICHIGAN,	)	TSCA-V-C-061
	)	
Respondent.	)	CONSENT AGREEMENT AND FINAL ORDER

CONSENT AGREEMENT

1. This civil administrative proceeding for the assessment of a penalty was initiated pursuant to Section 16(a) of the Toxic Substances Control Act (TSCA), 15 U.S.C. §2615(a).

2. A Complaint and Notice of Opportunity for Hearing was filed by Complainant on May 20, 1982, charging in two counts that Respondent violated Sections 6 and 15 of TSCA, 15 U.S.C. §§2605 and 2614.

3. Count 1 alleged a violation of Section 15 of TSCA, 40 C.F.R. §761.10(a) and (d)(1) [recodified as 40 C.F.R. §761.60(a) and (d)(1), May 6, 1982, 47 Federal Register 19526] and Interim regulations promulgated at 46 Federal Register 16094 (March 10, 1981) for which the complainant sought a civil penalty of $3,000, pursuant to 15 U.S.C. §2614(1).

4. Count 2 alleged a violation of Section 15 of TSCA, 40 C.F.R. §§761.42 and 761.30(a) [recodified as 40 C.F.R. §§761.65 and 761.20(a) respectively, May 6, 1982, 47 Federal Register 19526], and Interim regulations promulgated at 46 Federal Register 16094 (March 10, 1981), for which the complainant sought a penalty of $500, pursuant to 15 U.S.C. Section 2614(1).

5. The Complaint alleged that the violations were discovered May 12, 1981, during an inspection by private contractors retained by the U.S. Environmental Protection Agency (U.S. EPA) of the respondent's facility at Kalamazoo, Michigan.

6. An Answer filed by respondent on July 6, 1982 admitted that contractors retained by U.S. EPA inspected respondent's facility on May 12, 1981 but alleged that the inspection was illegal because it was conducted by private contractors.

7. The Answer denied the factual allegations upon which Count 1 of the complaint was founded.

8. The Answer denied the factual allegations upon which Count 2 was founded.

9. The parties discussed settlement of this action in an informal conference on September 13, 1982. Present at the conference were Joseph S. Wright, Jr. and Andrew H. Perellis, attorneys for the respondent, Marian H. Neudell and Elizabeth Maxwell, attorneys for U.S. EPA, and Dr. Sheldon Simon, environmental scientist for U.S. EPA.

10. At the settlement conference, respondent submitted that the alleged PCB-contaminated transformer referred to in Count 1 of the Complaint, if it had "leaked" within the meaning of 40 C.F.R. §761.2(m) [recodified as 40 C.F.R. §761.3(m)], was not an "improper disposal" in violation of Section 15 of TSCA, 40 C.F.R. §761.10(a) and (d)(1) [recodified as 40 C.F.R. §761.60(a) and (d)(1)] or the Interim regulations.

SA 038686

11. At the settlement conference, respondents further submitted that the alleged PCB-contaminated transformer referred to in Count 2 of the Complaint was not "stored for disposal" and thus not in violation of Section 15 of TSCA, 40 C.F.R. §§761.42 and 761.30(a) [recodified as 40 C.F.R. §§761.65 and 761.20(a), respectively] or the Interim regulations.

WHEREFORE, for the purpose of this proceeding only, and without prejudice to any other proceeding:

1. Respondent Allied Paper, Inc. hereby admits the jurisdictional allegations in the Complaint.

2. The parties stipulate that Count 1 of the Complaint be dismissed.

3. Respondent neither admits nor denies the factual allegations set forth in Count 2 of the Complaint.

4. Respondent waives its rights to a hearing on the allegations in Count 2 of the Complaint.

5. Respondent states that it has inspected all of its polychlorinated biphenyl (PCB) transformers and transformers classified as PCB-contaminated electrical equipment, repaired or replaced any leaking PCB transformers or transformers classified as PCB-contaminated electrical equipment, and that it maintains the records required pursuant to 40 C.F.R. §761.30 as amended by the Administrator in a notice published at 47 Federal Register 37342, 37357.

6. Respondent consents to the issuance of the following Final Order for the purpose of terminating this litigation with prejudice:

SA 038687

ORDER

1. Respondent Allied Paper, Inc. shall within twenty (20) days of receipt of this Consent Agreement and Final Order, pay by cashier's or certified check THREE HUNDRED DOLLARS ($300.) payable to the Treasurer of the United States of America. Such payment shall be remitted to the Accounts Receivable Clerk, Financial Management Section (5MF-14) U.S. EPA, Region V, 230 South Dearborn Street, Chicago, Illinois 60604.

2. Refusal to comply with the terms of this Order will result in the referral of this matter to the United States Attorney General for collection.

3. Upon compliance with the terms of this Order, this proceeding shall be dismissed with prejudice.

Mr. Thomas C. Riley
Vice President and General Counsel
Allied Paper, Incorporated
299 Park Avenue
New York, NY 10171
Date: _____ at: _____

Basil G. Constantelos
Director, Waste Management Division
United States Environmental Protection
Agency, Region V
230 South Dearborn Street
Chicago, IL 60604
Date: 11-5-82 at: Chicago, Ill

It is so ordered. This Order shall become effective immediately.

Valdas V. Adamkus
Regional Administrator
United States Environmental Protection
Agency, Region V
230 South Dearborn Street
Chicago, IL 60604

SA 038689

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES COMMISSION

IN THE MATTER OF

NPDES Permit No. MI 0000779

Allied Paper Incorporated
Monarch Mill

WRC NO.: NC-7-75-01-1488

NOTICE OF NONCOMPLIANCE AND ORDER TO COMPLY

TO: Allied Paper, Inc.
Monarch Mill
P.O. Box 2528
Kalamazoo, Michigan 49003
ATTENTION: Mr. Ernest J. Gilman, Vice President

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 20, 1974.

PURSUANT to the terms of the aforementioned permit (Part I, Section A), the pH of your discharge from Outfall 002 shall not be less than 6.5 nor greater than 9.5 and the discharge shall not cause excessive foam in the receiving waters. Further your discharge is to be essentially free of floating and settleable solids.

Two 24-hour wastewater surveys conducted by staff of the Michigan Water Resources Commission on May 5 - 7, 1975 show that your facility was not complying with the aforementioned requirements in that:

1. The pH limitations were not being met as follows:

Sample Type	Time	pH (su)
Composite	From 5/5/75 To 5/6/75	6.4
Grab	10:20 p.m. 5/5/75	5.8
	8:40 a.m. 5/6/75	6.3

2. In the afternoon of May 6, 1975, foam resulting from your discharge was observed by our staff for at least one hour on Portage Creek. This foam was observed to extend approximately 2,000 feet downstream from your discharge.

3. Visible floating or settleable solids were observed by our staff on two occasions in the form of a heavy flock being discharged on May 5, 1975.

MDNR 863948

IT IS THEREFORE ORDERED that you submit by no later than August 31, 1975, a written explanation for these excessive and unauthorized discharges and a written proposal for abating further occurrences of such discharges.

WATER RESOURCES COMMISSION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Date Issued: July 23, 1975 by: W. G. Turney
Assistant Executive Secretary

ADDRESS FOR FURTHER CORRESPONDENCE

Karl Zollner, Jr., Regional Engineer
Michigan Water Resources Commission
Water Quality Control Division
Department of Natural Resources
Stevens T. Mason Building
Lansing, Michigan 48926
Phone: 517-373-1947

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES COMMISSION

IN THE MATTER OF

NPDES Permit No. MI 0000779

Allied Paper Incorporated
Monarch Mill

WRC NO.: NC-7-75-01-1488

NOTICE OF NONCOMPLIANCE AND ORDER TO COMPLY

TO: Allied Paper, Inc.
Monarch Mill
P.O. Box 2528
Kalamazoo, Michigan 49003
ATTENTION: Mr. Ernest J. Gilman, Vice President

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 20, 1974.

PURSUANT to the terms of the aforementioned permit (Part I, Section A), the pH of your discharge from Outfall 002 shall not be less than 6.5 nor greater than 9.5 and the discharge shall not cause excessive foam in the receiving waters. Further your discharge is to be essentially free of floating and settleable solids.

Two 24-hour wastewater surveys conducted by staff of the Michigan Water Resources Commission on May 5 - 7, 1975 show that your facility was not complying with the aforementioned requirements in that:

1. The pH limitations were not being met as follows:

Sample Type	Time	pH (su)
Composite	From 5/5/75 To 5/6/75	6.4
Grab	10:20 p.m. 5/5/75	5.8
	8:40 a.m. 5/6/75	6.3

2. In the afternoon of May 6, 1975, foam resulting from your discharge was observed by our staff for at least one hour on Portage Creek. This foam was observed to extend approximately 2,000 feet downstream from your discharge.

3. Visible floating or settleable solids were observed by our staff on two occasions in the form of a heavy flock being discharged on May 5, 1975.

IT IS THEREFORE ORDERED that you submit by no later than August 31, 1975, a written explanation for these excessive and unauthorized discharges and a written proposal for abating further occurrences of such discharges.

WATER RESOURCES COMMISSION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Date Issued: July 23, 1975 by: W. G. Turney
Assistant Executive Secretary

ADDRESS FOR FURTHER CORRESPONDENCE

Karl Zollner, Jr., Regional Engineer
Michigan Water Resources Commission
Water Quality Control Division
Department of Natural Resources
Stevens T. Mason Building
Lansing, Michigan 48926
Phone: 517-373-1947

COMPLIANCE NOTICE

ORGANIZATION NAME	LOCATION:
ALLIED PAPER INCORPORATED MONARCH MILL	Kalamazoo
	STATION NO:

PERMIT NO.	NON-COMPLIANCE NO. OR VIOLATION NO.
MI 0000779	NC-07-75-01-1488

REASON	NOTICE INFORMATION DATE ISSUED	DUE DATE	EXTENSION (DAYS)	COMPLIANCE
☐ Time Schedule				
☒ Effluent Standards	07-23-75	08-31-75	explanation and abatement proposal	8/28/75
☐ Operating Report				

Comments:

Two surveys show that facility exceeded pH limits.
Foam resulting from facility's discharge was observed on Portage Creek, extending about 2,000 feet downstream.
Visible floating or settleable solids were observed by WRC staff in the form of heavy flock being discharged on May 5, 1975.

Paper!

STATE OF MICHIGAN
DEPARTMENT OF NATURAL RESOURCES
WATER RESOURCES COMMISSION

C. Harvey

IN THE MATTER OF
Allied Paper, Inc.
Monarch Mill

NPDES Permit No. MI 0000779
WRC No.: NC-11-77-02-2606

RECEIVED
NOV 9 1977
DISTRICT 3
WATER QUALITY DIV.

NOTICE OF NONCOMPLIANCE AND ORDER TO COMPLY

TO: Allied Paper, Inc.
Monarch Mill
P.O. Box 2528
Kalamazoo, MI 49003

Attention: Mr. Ernest J. Gilman, Vice President

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 20, 1974, and Act 245, Public Acts of 1929, as amended.

PURSUANT to the terms of the final effluent limitations of the aforementioned permit (Part I, Section A.2), any discharge from outfall 002 from your facility is limited to the following:

Effluent Characteristic	Discharge Limitations kg/day (lbs/day) Daily Maximum	
May 15 to October 14		
BOD_5	177	(385)
Total Suspended Solids	230	(500)

FURTHER, PURSUANT to Section 7 of the aforementioned Act 245, a person shall not discharge any waste or waste effluent into the surface waters or groundwaters of the state unless he is in possession of a valid permit from the Commission for such discharge.

PLEASE BE ADVISED that your facility has failed to comply with the aforementioned requirements as follows:

1. The monthly monitoring reports submitted for the months of July and August, 1977, show that your discharge from outfall 002 exceeded your authorized discharge limits according to the following:

Date Sampled	BOD_5 (lbs/day)	Total Suspended Solids (lbs/day)
7/7/77		505
7/13/77	409	504
7/14/77	463	
7/15/77	388	
7/17/77	470	
7/28/77	735	605
7/29/77	702	
7/30/77	671	836
8/3/77	414	
8/7/77	399	
8/8/77	483	
8/9/77	411	
8/10/77	407	
8/11/77	447	
8/12/77	478	
8/13/77	481	
8/14/77	400	
8/18/77	498	
8/21/77	397	
8/24/77	424	
8/25/77	393	
8/26/77	428	
8/27/77	[illegible]	

2. A 24-hour wastewater survey conducted by staff of the Michigan Department of Natural Resources on July 18-19, 1977, shows that your discharge from outfall 002 exceeded your authorized discharge limits according to the following:

Sample Type and Time	Effluent Characteristic	Discharge
Composite from 7/18/77 to 7/19/77	BOD_5	220 kg/day

3. The wastewater survey also revealed two unpermitted discharges. The sand filter backwash from your Bryant Mill is still discharged directly to Portage Creek. This unpermitted discharge was called to your attention by letter of June 21, 1976, at which time permit applciation forms were enclosed. Underdrainage from your sludge disposal area also discharges to Portage Creek. These two discharges violates the terms of the aforementioned Section 7 of Act 245.

IT IS THEREFORE ORDERED that you take the following actions by no later than December 1, 1977, or further administrative remedies will be instituted:

1. Submit a written explanation for your unauthorized and excessive discharges of BOD_5, and Total Suspended Solids and a written proposal for abating further occurrences of such discharges; and

2. Submit a written explanation for your unauthorized discharges of wastewater from the sand filter backwash from the Bryant Mill and the underdrainage from your sludge disposal area and a written proposal for eliminating further occurrences of such discharge practices.

WATER RESOURCES COMMISSION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Date Issued: November 3, 1977

by Robert J. Courchaine
Robert J. Courchaine
Executive Secretary

ADDRESS FOR FURTHER CORRESPONDENCE:

Karl Zollner, Jr., Regional Engineer
Michigan Water Resources Commission
Water Quality Division
P.O. Box 30028
Lansing, Michigan 48909
Telephone: (517) 373-1947

MONE 883983

STATE OF MICHIGAN

DEPARTMENT OF NATURAL RESOURCES

WATER RESOURCES COMMISSION

IN THE MATTER OF

Allied Paper Inc.
Monarch Mill

NPDES PERMIT NO. MI 0000779

WRC No.: NC-7-79-03-3131

NOTICE OF NONCOMPLIANCE AND ORDER TO COMPLY

TO: Allied Paper, Inc.
P.O. Box 2528
Kalamazoo, MI 49003

Attention: Ernest J. Gilman, Vice President

PLEASE BE ADVISED that we have sufficient information to believe that your facility has failed to comply with the terms and conditions of your National Pollutant Discharge Elimination System Permit issued on December 20, 1974.

PURSUANT to the terms of the aforementioned permit (Part I, Section A.2 Final Effluent Limitations), any discharge from your facility is limited to the following for outfall 002:

Effluent Characteristics	Discharge Limitations
Oil-Grease-Visual: the discharge shall not contain oil or other substances in amounts sufficient to create a visible film or sheen on the receiving waters.	0-No oil film 1-Slight 2-Moderate 3-Heavy 4-Excessive

The monthly monitoring reports submitted for the months of March 1979 and April 1979 show that your facility exceeded its authorized discharge limits according to the following:

Date Sampled	Effluent Characteristics	Reported Value
3/6/79	Oil-Grease-Visual	1
3/12/79	Oil-Grease-Visual	1
3/19/79	Oil-Grease-Visual	1
3/20/79	Oil-Grease-Visual	1
3/21/79	Oil-Grease-Visual	1
3/22/79	Oil-Grease-Visual	1
3/26/79	Oil-Grease-Visual	1
3/27/79	Oil-Grease-Visual	1
3/28/79	Oil-Grease-Visual	1
3/31/79	Oil-Grease-Visual	1
4/2/79	Oil-Grease-Visual	1
4/3/79	Oil-Grease-Visual	1
4/9/79	Oil-Grease-Visual	1
4/11/79	Oil-Grease-Visual	1
4/12/79	Oil-Grease-Visual	2
4/13/79	Oil-Grease-Visual	1
4/16/79	Oil-Grease-Visual	1
4/17/79	Oil-Grease-Visual	1
4/19/79	Oil-Grease-Visual	1
4/20/79	Oil-Grease-Visual	1
4/21/79	Oil-Grease-Visual	1
4/22/79	Oil-Grease-Visual	1
4/23/79	Oil-Grease-Visual	1
4/24/79	Oil-Grease-Visual	1
4/25/79	Oil-Grease-Visual	1
4/27/79	Oil-Grease-Visual	1
4/28/79	Oil-Grease-Visual	1
4/29/79	Oil-Grease-Visual	1

BE ADVISED that similar excursions were noted in months prior to March 1979. However, they are not being documented in this Notice of Noncompliance. This is not to be construed as a release or waiver of liability for violations occurring in months prior to the reporting period cited in this Notice.

FURTHER PURSUANT to the terms of the aforementioned permit (Part II, Section A.4 Noncompliance Notification): If for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permittee shall provide the Regional Administrator and the State with the following information, in writing,within five (5) days of becoming aware of such condition:

a. A description of the discharge and cause of noncompliance; and

b. The period of noncompliance including exact dates and times, or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and further prevent recurrence of the noncomplying discharge.

BE ADVISED that the State, to date, has not received the proper noncompliance notification for the violations addressed in this Notice.

IT IS THEREFORE ORDERED that a written explanation for these unauthorized and excessive discharges be submitted to the Chief of the Water Quality Division by no later than July 31, 1979 or further administrative remedies will be instituted.

WATER RESOURCES COMMISSION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Date Issued: July 12, 1979

Robert J. Courchaine

Robert J. Courchaine
Executive Secretary

by: Robert F. Babcock

Robert F. Babcock, Chief
NPDES Effluent Compliance Unit

ADDRESS FOR FURTHER CORRESPONDENCE

Robert F. Babcock, Water Quality Administrator
Michigan Water Resources Commission
Water Quality Division/NPDES Compliance Section
P.O. Box 30028
Lansing, MI 48909
Telephone: (517) 373-1947

THE KAR LABORATORY
xxxxxxxxxxxxxxxxxxxx 1711 Merrill St.
KALAMAZOO MICHIGAN 49008
Telephone 381 9666

RECEIVED
MAY - 4 1976
U.G. STOEFFLER

ANALYTICAL REPORT

Date: May 3, 1976 P.O. Number: 14901

To: Allied Paper Company
P. O. Box 2528
Kalamazoo, Michigan 49003

Re: Four (4) water samples submitted on March 30, 1976 and April 6, 13, & 20, 1976 for PCB analysis. (Samples from Portage Creek, During lowering of Alcott Street dam.)

Methods: Gas Chromatography - Electron capture

Results:

Date sample submitted	Laboratory number	Polychlorinated Biphenyls
March 30, 1976	W-309	106 ppb
April 6, 1976	W-315	150 ppb
April 13, 1976	W-319	132 ppb
April 20, 1976	W-327	120 ppb

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat
Director

JNK:mrc

000573

June 4, 1976

Woodson-Tenent Laboratories
345 Adams Avenue
Memphis, Tennessee 38102

Dear Sirs:

Under separate cover, via United Parcel Service, we are sending a 2 liter sample of Portage Creek water taken June 3, 1976, on which a PCB analysis is requested.

The cost of this analysis should be applied to our Purchase Order No. 15189, the same purchase order number assigned to work you did for us in April '76.

Very truly yours,

U. G. Stoeffler, Manager
Process Development

/deo

bcc: F. Harrison
E. J. Gilman
M. Smith

THE KAR LABORATORY
219 PEEKSTOK ROAD
KALAMAZOO, MICHIGAN 49001
TELEPHONE (616) 381-9666

CERTIFICATE OF ANALYSIS

Allied Paper Incorporated
Bryant Division
P.O. Box 2528
Kalamazoo, MI 49003

Date: September 7, 1982

Laboratory code: K-9028-1

Attention: Mr. Al Vickory

Re: Polychlorinated Biphenyl Analysis

This will certify that a sample of soil under former location of Transformer Serial No.B978489 was collected by the Kar Laboratory from the Bryant Mill Division of the Allied Paper Company, Kalamazoo, MI on August 30, 1982. It was analyzed by accepted procedures using electron capture gas chromatography. It was evaluated using an Arochlor 1254 Standard.

Results:

Parts per million PCB found: <10

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat
Director

JNK:cr

THE KAR LABORATORY
219 PEEKSTOK ROAD
KALAMAZOO, MICHIGAN 49001
TELEPHONE (616) 381-9666

CERTIFICATE OF ANALYSIS

Allied Paper Incorporated
Bryant Division
P.O. Box 2528
Kalamazoo, MI 49003

Attention: Mr. Al Vickory

Date: September 7, 1982
Laboratory code: K-9028-2

Re: Polychlorinated Biphenyl analysis

This will certify that a sample of sediment from a beam at the former site of Transformer Serial No. B978489 was collected by the Kar Laboratory from the Bryant Mill Division of the Allied Paper Company, Kalamazoo, MI on August 30, 1982. It was analyzed by accepted procedures using electron capture gas chromatography. It was evaluated using an Aroclor 1254 Standard.

Results:

Parts per million PCB found: 65

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat
Director

JNK:cr

THE KAR LABORATORY
XXXXXXXXXXXXXXX 1711 Merrill St.
KALAMAZOO MICHIGAN 49008

Telephone 381 9666

RECEIVED
3 1976
U. G. STOEFFLER

ANALYTICAL REPORT

Date: April 5, 1976 P.O. Number: 14901

To: Mr. U. G. Stoeffler
Allied Paper Company
P.O. Box 2528
Kalamazoo, Michigan 49003

Re: Two (2) samples submitted on March 9, & 23, 1976 for PCB analysis. (Samples from Portage Creek, during lowering of Alcott Street dam.)

Methods: Gas Chromatography - Electron capture

Results:

Date sample submitted	Laboratory No.	Polychlorinated Biphenyls
March 9, 1976	W-292	92.7 ppb
March 23, 1976	W-305	292.0 ppb

Respectfully submitted,

THE KAR LABORATORY

John N. Karnemaat

John N. Karnemaat
Director

JNK:mrc

is necessary to interrupt existing surface drainage, then temporary drainage facilities shall be provided until the permanent drainage work is complete.

11. In carrying out erosion control measures, the Contractor will be guided by, but not limited to, the following controls:

    a. When borrow material is obtained, erosion of the borrow area shall be so controlled both during and after completion of the work, such that erosion will be minimized and sediment entering drainage channels to Portage Creek will be minimized. Spoil areas and construction roads shall be located, constructed and maintained in a manner that will minimize sediment entering drainage channels to Portage Creek. The Contractor shall submit grading plans for all spoil areas to the Engineer for acceptance prior to the start of work on, or the use of, such areas. The grading plans shall indicate the sequence of operations, temporary slopes and other factors which may have an influence on erosion control.

    b. Frequent fording of drainage channels will not be permitted; therefore, temporary bridges or other structures shall be used wherever an appreciable number of crossings are necessary. Unless otherwise approved in writing by the Engineer, mechanized equipment shall not be operated in drainage channels.

- END OF SECTION -

W-J 6/24/76

Repeats | White ~~Cork~~ 100642 - .08 ppm

10 0638 - 0.15 ppm

10-726 .09 ppm

June 4

Water - 4.22 ppb

all arclors 1254 + 1242

000640

ENVIRONMENTAL RESEARCH GROUP INC.

[illegible] ARBOR, MICHIGAN 48104
[illegible]

SAMPLES RECVD BY : 04-13-81
CLIENT P.O. : 35381
REPORT DATE : 05-29-81
REPORT NO. : [illegible]

FINAL REPORT ON
ERG PROJECT NO. [illegible]

RESIDUAL SAMPLES WILL BE
HELD TWO WEEKS

FOR

[illegible]

REFER TECHNICAL QUESTIONS
TO : J. WILSON

CLIENT ID	PARAMETER & MATRIX	RESULT UNIT	ERG SAMPLE NUMBER
	DIELDRIN	ND	
	ENDOSULFAN I	ND	
	ENDOSULFAN II	ND	
	ENDOSULFAN SULFATE	ND	
	ENDRIN	ND	
	ENDRIN ALDEHYDE	ND	
	HEPTACHLOR	<0 10 ug/L	
	HEPTACHLOR EPOXIDE	ND	
	TOXAPHENE	ND	
	PCB 1016	ND	
	PCB 1221	ND	
	PCB 1232	ND	
	PCB 1242	ND	
	PCB 1248	ND	
	PCB 1254	ND	
	PCB 1260	ND	

COMMENTS: a-BHC HEPTA DET. LIMIT IS 0.10.

4-13-81
BOD5 IN IND. EFFLUENT
28 mg/L

4-13-81
CARBON, TOTAL ORGANIC, IN IND. EFFLUENT
35 mg/L

4-13-81
SOLIDS, SUSPENDED IN IND. EFFLUENT
38 mg/L

ND = NOT DETECTED SD = SAMPLE DAMAGED
NA = NOT APPLICABLE TO TEST REQUESTED
FR = SEE FIELD REPORT FOR RESULT

CONTINUED

THE KAR LABORATORY
1840 SOUTH WESTNEDGE
KALAMAZOO, MICHIGAN 49008
Telephone 381-9666

RECEIVED
MAR 15 1974
U.G. STOEFFLER

ANALYTICAL REPORT

Date: March 14, 1974 3375-K-5-ALL

To : Allied Paper Company
P.O. Box 2528
Kalamazoo, Michigan 49003
Attention: Mr. U.G. Stoeffler

Re : PCB analyses. Samples submitted on October 8, 1973.

Method: Gas Chromatography - Electron Capture.

Results:

Sample Description	Polychlorinated Biphenyls
A	32 ppb
B	38 ppb
C	34 ppb
D	61 ppb

Respectfully submitted
THE KAR LABORATORY

John M. Karnemaat
Director

JMK

SCM CONFIDENTIA

ESI
WESTERN MICHIGAN
ENVIRONMENTAL SERVICES, INC.
146 SOUTH RIVER AVENUE
HOLLAND MICHIGAN 49423
PHONE 616 396 1209

TO: Wilkins & Wheaton Testing Laboratory
169-171 Portage Street
Kalamazoo, Michigan 49007
Re: Allied Paper, Project #8013
Attn: Bill French

DATE: July 8, 1983

ANALYSIS: of paper waste material.

CERTIFIED BY: Dennis J. Bush
Dennis J. Bush/William G. Rauch

SAMPLING DATE: Received from client on June 17, 1983.

RESULTS: As noted.

ESI #	SAMPLE I.D.	PARAMETER	CONCENTRATION
830654-1	Paper Waste Material from Allied Paper (Sample A)	ASTM Distilled Water Leachate	See Attached Table 1
		EP Toxicity	See Attached Table 2
		Gross Analysis	See Attached Table 3
-2	Paper Waste Material from Allied Paper (Sample B)	ASTM Distilled Water Leachate	See Attached Table 1
		EP Toxicity	See Attached Table 2
		Gross Analysis	See Attached Table 3

000621

Table 3

Analysis of Paper Waste Material from Allied Paper
Wilkins & Wheaton Project #8013
Results expressed as milligrams per kilogram (mg/kg)
of sample except where noted.

Parameter	Sample A	Sample B
pH (s.u.)	6.5	6.8
Specific Conductance (μmhos/cm)	N.A.	N.A.
Total Solids (% of sample)	16.37	29.29
Total Dissolved Solids	N.A.	N.A.
Total Volatile Solids (% of sample)	6.17	7.55
Bicarbonate	N.A.	N.A.
Chloride	279	266
COD	N.A.	N.A.
TOC	N.A.	N.A.
Grease & Oil	1,000	2,030
Ammonia, Nitrogen	<0.6	23.6
Nitrate-Nitrite, Nitrogen	<1.1	23.0
Organic, Nitrogen	290	826
Phenol, Total	0.12	0.13
Sulfate	169	92
Calcium	380	9200
Iron	140	490
Magnesium	80	300
Sodium	35	32
PCB 1242	<0.5	<0.5
PCB 1254	<0.5	<0.5
PCB 1260	<0.5	<0.5

(Continued on Page 2)

ESI #830654	-1	-2

Table 3

Analysis of Paper Waste Material from Allied Paper
Wilkins & Wheaton Project #8013
Results expressed as milligrams per kilogram (mg/kg)
of sample except where noted.

Parameter	Sample A	Sample B
Arsenic	0.92	1.75
Barium	6.6	95
Cadmium	<0.05	0.21
Chromium, Total	1.7	3.6
Copper	5.4	10.0
Cyanide	5.7	6.8
Lead	1.7	5.1
Mercury	<0.022	<0.026
Nickel	0.71	1.8
Selenium	<0.026	<0.024
Silver	<0.05	<0.07
Zinc	3.6	12 0
ESI #870654	-1	-2

N.A. - Test parameter not applicable.