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MICHIG DEPARTMENT OF NATURAL R OURCES

INTEROFFICE COMMUNICATION

US EPA RECORDS CENTER REGION 5
457793

October 17, 1985

TO: Fred Morley, Compliance Section #1, Plainwell

FROM: William Creal, Water Quality Surveillance Section

SUBJECT: Slime Growths in Portage Creek, Kalamazoo

On October 15, 1985, I observed extensive slime growths (filamentous bacteria) in Portage Creek from Alcott Street upstream to Allied Paper Company's discharge. I walked the river from the Old Bryant Mill Pond to Cork Street. The slime growths were extensive on all suitable substrates (sticks, logs, stones) up to Allied's discharge. No slimes were found upstream of the discharge.

Macroinvertebrate communities exhibited a similar response. Downstream of Allied's discharge, the community was dominated by sowbugs and leeches. Upstream of Allied's discharge, I found abundant populations of mayflies and caddisflies, indicating good river quality.

Slime growths are usually stimulated by a carbon source such as short chain sugars or alcohols. We have observed these types of growths downstream of fruit processors, fish hatcheries and landfill leachate.

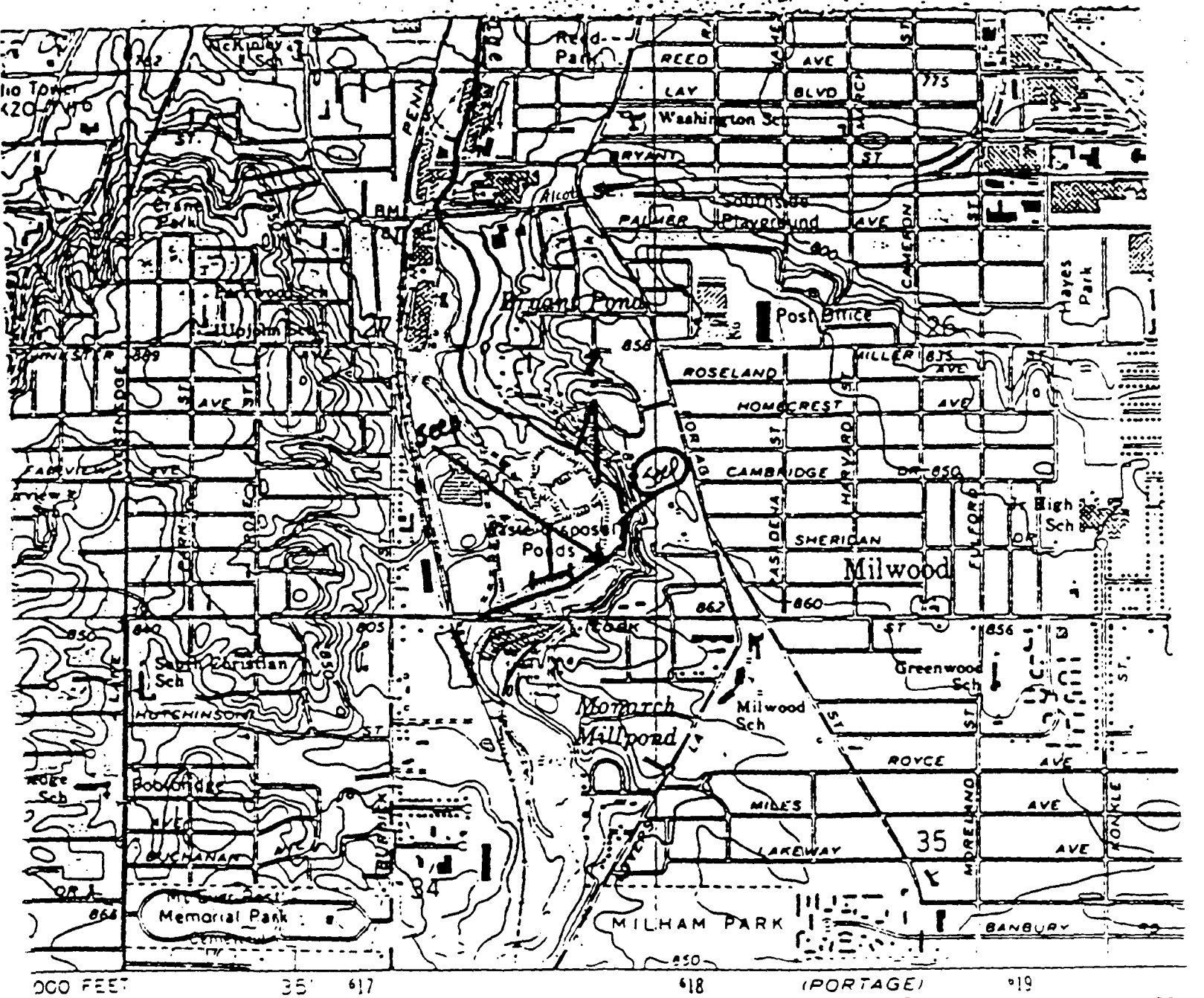
I feel there are two potential sources that cause the slime growths in Portage Creek: 1) Allied Paper's Monarch clarifier discharge, or 2) seeps from Allied Paper's sludge disposal area. I found two defined seeps from the sludge disposal area flowing into Portage Creek. These seeps were sampled for PCBs and suspended solids. I estimated the flow of these seeps to be 0.01-0.04 cfs. A continuous diffuse seepage area was present just downstream of Allied's discharge. No slimes were present in any of these seeps. Therefore, the logical conclusion is that the slimes were caused by Allied's clarifer discharge.

In light of these findings, I recommend that we not consider any increase in Allied's clarifier discharge loadings until we correct the present poor instream conditions. We intend to sample Portage Creek and the landfill seeps in November to confirm the source of slime growths.

WC/pls

BC

cc: B. Busby, EED
P. Zugger
W. McCracken
D. Swanson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MILLER
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Monarch Millpond
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35
34
617
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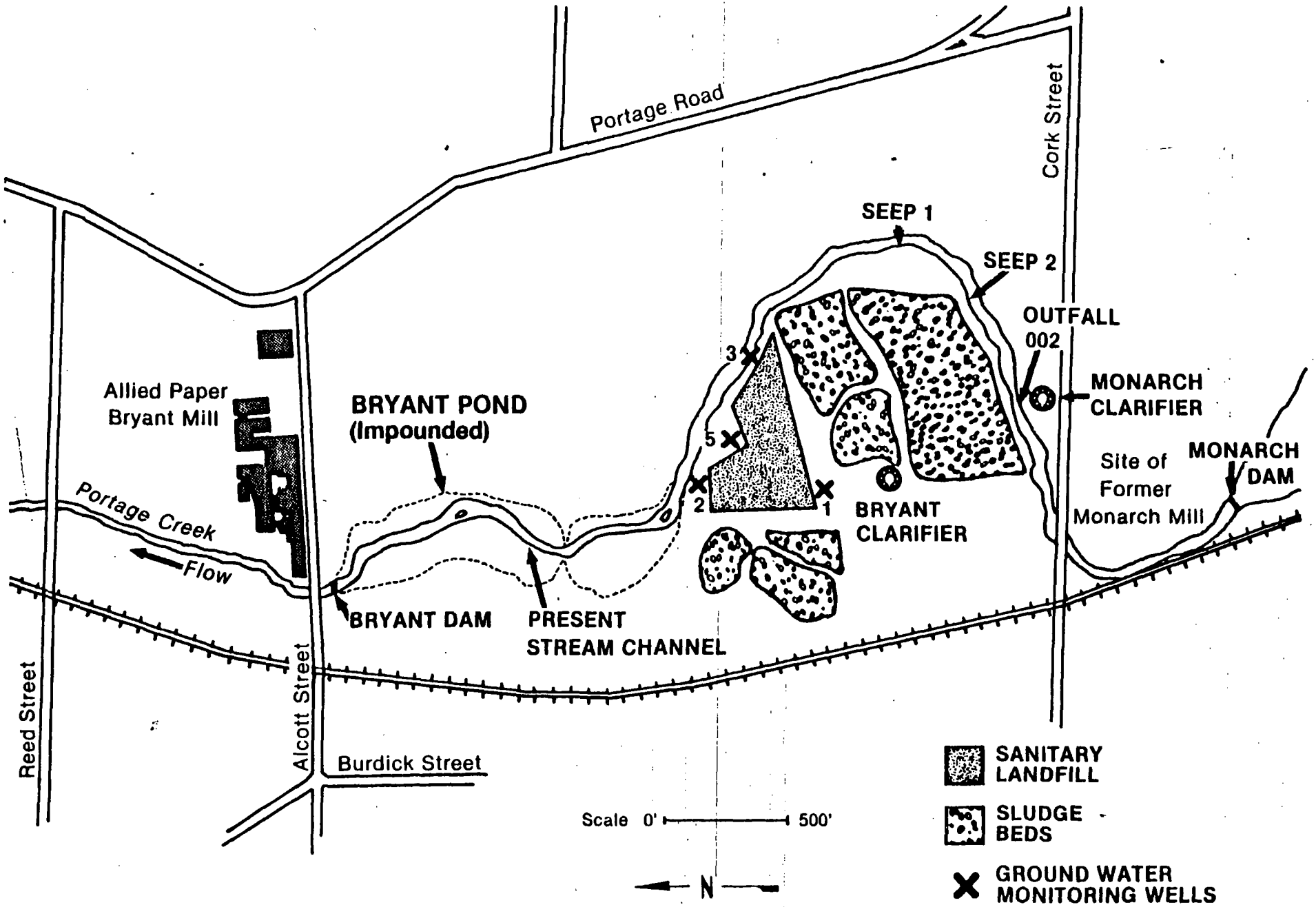
619
(PORTAGE)
3868 II NE
1 1/2 MI TO INTERSTATE 94
PORTAGE 3-8 MI
0.8 MI TO INTERCHA
SCALE 1:24 000
1000 0 1000 2000 3000 4000 5000 6000
CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL
MN
GN
0°58'
17 MILS

Water sampling results from Kalamazoo.October 16.1985

River	Location	TSS mg/l	PCB ng/l
Portage Creek	Cork St	12	<10
	Alcott St	5	155
	Landfill Seep No. 1	16	4389
	Landfill Seep No. 2	121	15
Kalamazoo River	River Rd	10	26
	Michigan Ave	9	33
	Paterson Rd	10	42

Sediment Sampling Results from Portage Creek, October 15, 1985

Location	PCB (mg/kg)	Total Solids (%)
Sediment surrounding seep #1	69.0	41
Upland depositional area, 2000 feet downstream from Cork Street	4.1	27
Streambank in front of #2	1.1	46
Streambank 1800 feet downstrea of Cork Street	1.3	39
Streambank 2400 feet downstrea of Cork Street	1.4	37
Streambank 2400 feet downstrea of Cork Street (gray sediment)	54.1	38
200 feet upstream of Bryant Po construction	35.0	28
Instream flocculent sediment. feet upstream of Bryant Pond.	36.4	43
Streambank (eastside) 200 feet upstream of Bryant Pond	530.0	41
Streambank (westside) 200 feet upstream of Bryant Pond	510.0	26


Portage Road
Cork Street
SEEP 1
SEEP 2
OUTFALL
002
MONARCH
CLARIFIER
MONARCH
DAM
Site of
Former
Monarch Mill
Allied Paper
Bryant Mill
BRYANT POND
(Impounded)
Portage Creek
Flow
BRYANT DAM
PRESENT
STREAM CHANNEL
BRYANT
CLARIFIER
1
2
3
5
Reed Street
Alcott Street
Burdick Street
Scale 0' 500'
N
SANITARY
LANDFILL
SLUDGE
BEDS
GROUND WATER
MONITORING WELLS