U.S. ENVIRONMENTAL PROTECTION AGENCY NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES



REPORT
ON
SLATERSVILLE RESERVOIRS
PROVIDENCE COUNTY
RHODE ISLAND
EPA REGION I
WORKING PAPER No. 28

PACIFIC NORTHWEST ENVIRONMENTAL RESEARCH LABORATORY

An Associate Laboratory of the

NATIONAL ENVIRONMENTAL RESEARCH CENTER - CORVALLIS, OREGON
and

NATIONAL ENVIRONMENTAL RESEARCH CENTER - LAS VEGAS, NEVADA

REPORT
ON
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WITH THE COOPERATION OF THE
RHODE ISLAND STATE DEPARTMENT OF HEALTH

AND THE
RHODE ISLAND NATIONAL GUARD

SEPTEMBER, 1974

CONTENTS

		Page
For	reword	ıi
Lis	t of Rhode Island Study Lakes	iv
Lak	e and Drainage Area Map	v
Sec	tions	
I.	Conclusions	1
II.	Introduction	5
III.	Lake and Drainage Basin Characteristics	6
IV.	Lake Water Quality Summary	7
٧.	Nutrient Loadings	14
VI.	Literature Reviewed	19

FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nation-wide threat of accelerated eutrophication to fresh water lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

- a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.
- b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.
- c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and water-shed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Rhode Island Division of Water Supply and Pollution Control for professional involvement and to the Rhode Island National Guard for conduct of the tributary sampling phase of the Survey.

Carleton A. Maine, Chief, and James W. Fester, Principal Sanitary Engineer of the Rhode Island Division of Water Supply and Pollution Control provided invaluable lake documentation and counsel during the course of the Survey.

Major General Leonard Holland, the Adjutant General of Rhode Island, and Project Officer Colonel Clarence Bozar, who directed the volunteer efforts of the Rhode Island National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF RHODE ISLAND

LAKE NAME

Harris Pond

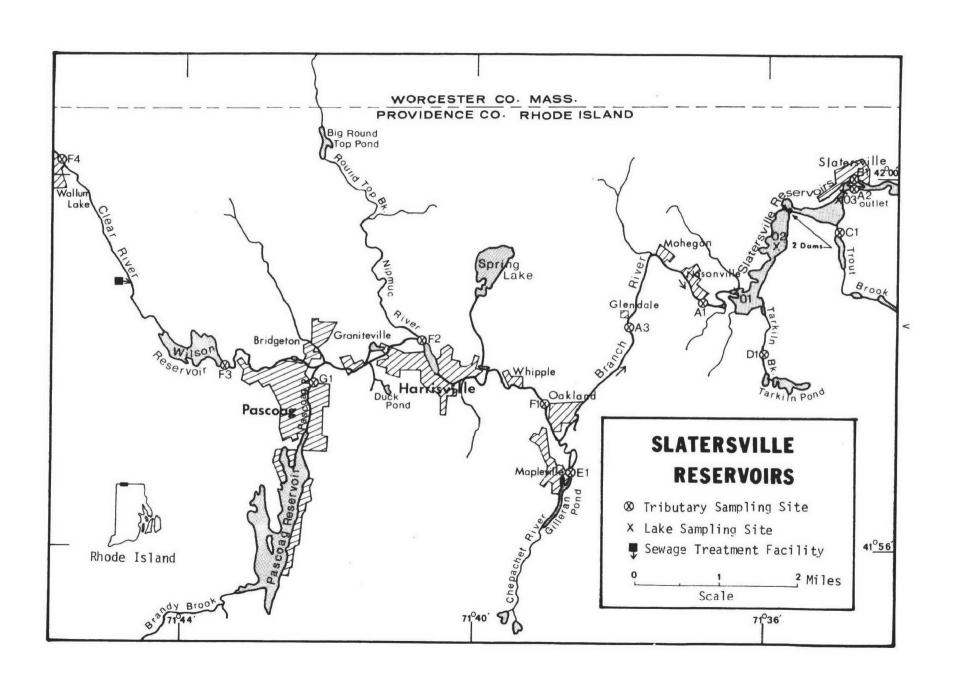
Providence, RI;
Worchester, MA

Slatersville Reservoir

Providence, RI

Turner Reservoir

Providence, RI;
Bristol, MA



SLATERSVILLE RESERVOIRS

STORET NO. 4402

I. CONCLUSIONS

A. Trophic Condition:

The moderate nutrient levels and the relatively low algal assay control yield indicate the Slatersville Reservoirs are only mildly eutrophic. However, heavy spring algal blooms have been reported in both Reservoirs, and the lower Reservoir reportedly has abundant submerged vegetation.

It is evident that the very short hydraulic retention time is suppressing the effects of high nutrient loading rates and preventing the occurrence of frequent and prolonged nuisance conditions.

B. Rate-Limiting Nutrient:

Algal assay results show the Reservoirs were phosphorus limited at the time the assay sample was collected.

C. Nutrient Controllability:

1. Point sources--During the sampling year, the Slaters-ville Reservoirs received a total phosphorus load at a rate over two times greater than that proposed by Vollenweider (in press) as a "dangerous" rate; i.e., a eutrophic rate (see page 18).

The Zambarano Memorial Hospital (Wallum Lake Sanitarium) wastewater treatment plant is the only known point source contributing to the Slatersville Reservoirs at this time, and

this source contributed less than 20 percent of the phosphorus load to the Reservoirs at the point of discharge. Moreover, Wilson Reservoir and at least seven other lesser impoundments provided phosphorus entrapment and/or biological assimilation in the 12 or so stream miles between the treatment plant discharge point and upper Slatersville Reservoir, so the amounts of phosphorus from this source that reached the Reservoirs must be considerably less than the indicated 1,670 pounds during the sampling year. Even if the entire phosphorus load from the plant actually reached the Reservoirs, complete removal of phosphorus at that source would only reduce the loading rate to about 42 lbs/acre/yr or 4.7 $g/m^2/yr$ (a rate still about twice the eutrophic rate). Therefore, it is unlikely that phosphorus removal at the Hospital treatment plant would result in any appreciable improvement in the trophic condition of the Slatersville Reservoirs.

The engineering firm of CE Maguire, Inc., Providence, RI, has prepared plans for a regional sewerage system to serve all of the population centers of the township of Burrillville with construction scheduled to begin during 1976 (Hoernle, 1973). The activated sludge plant serving the system will be located at the village of Whipple, and the effluent will be discharged to the Pascoag (Clear) River about five stream miles above Upper Slatersville Reservoir.

As presently planned, the Burrillville system does not include phosphorus removal; but by the time the design population of 8,500 persons is being served, the system will have about tripled the existing phosphorus loading to the Slatersville Reservoirs (assuming 20% removal of 3.5 lbs P/capita/yr). A phosphorus load of that magnitude will certainly affect the trophic condition of the Reservoirs; and provision of phosphorus removal or a high degree of operation of the treatment plant will be necessary if deterioration of the present trophic condition of the Reservoirs is to be prevented.

Although the protection of public health that will be provided by the regional system is of primary importance, consideration should be given to inclusion of phosphorus removal during one of the later stages of system development unless it has been determined that operation of the activated-sludge treatment plant results in satisfactory phosphorus removal.

2. Non-point sources--The nutrient exports of Trout Brook and Tarkiln Brook (see page 18) compare well with those of unimpacted Quick Brook at nearby Harris Pond (see Working Paper No. 27, "Report on Harris Pond"); however, the exports of the Branch River were much higher.

Assuming the means of the exports of Trout Brook and Tarkiln

Brook are representative of non-point nutrient contributions in the

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drainage, the excess contributions of the Branch River (66 lbs P and 666 lbs $N/mi^2/yr$) are attributable to unmeasured point sources. For the year, then, unmeasured point sources in the Branch River drainage contributed about 4,900 lbs of phosphorus (47% of the total P load) and about 49,100 lbs of nitrogen (25% of the total N load).

II. INTRODUCTION

The Slatersville Reservoirs were formed in the 1800's by two impoundments of the Branch River to provide water power for the Slater Textile Mill (se map, page v). The Mill has since been converted to light manufacturing, and the water power is no longer utilized.

The Reservoirs are relatively shallow but do support some fishing. Largemouth bass and yellow perch are the most common species in the lower Reservoir, while black crappies predominate in the upper Reservoir where species diversity and growth rates are reported to be somewhat better. Public access is rather limited at both Reservoirs, and little other recreational use is made of the water bodies.

The shorelines of both Reservoirs are in private ownership and are mostly wooded and undeveloped except for the eastern two-thirds of the north shoreline of the lower Reservoir. Most of the homes in this area are set well back from the shoreline.

The drainage area is characterized by mixed coniferous and deciduous forests with little agricultural use. Most of the urbanized areas lie along the Pascoag, Clear, and Branch rivers in the township of Burrillville. It is estimated that 70 percent of the township population of about 10,000 persons lives in these urbanareas.

III. LAKE AND DRAINAGE BASIN CHARACTERISTICS

A. Lake Morphometry*:

1. Surface area: 207 acres.

2. Mean depth: 8 feet.

3. Maximum depth: 23 feet.

4. Volume: 1,656 acre/feet.

5. Mean hydraulic retention time: 5 days.

B. Tributary and Outlet: (See Appendix A for flow data)

1. Tributaries -

	<u>Name</u>	Drainage area**	Mean flow**
	Branch River	73.7 mi ²	128.5 cfs
	Trout Brook	2.5 mi ²	4.3 cfs
	Tarkiln Brook	9.2 mi ²	16.0 cfs
	Minor tributaries & immediate drainage -	4.1 mi ²	7.7 cfs
	Totals	89.5 mi ²	156.5 cfs
2.	Outlet -		
	Branch River	89.7 mi ^{2†⊤}	156.5 cfs
	• •		

C. Precipitation^{††}:

- 1. Year of sampling: 56.8 inches.
- 2. Mean annual: 40.4 inches.

^{*} Anonymous, 1970.

^{**} Drainage areas are accurate within $\pm 1\%$; gaged flows are accurate within $\pm 15\%$; and ungaged flows are accurate within $\pm 20\%$.

[†] Includes area of Reservoirs; outflow adjusted to equal sum of inflows.

⁺⁺ See Working Paper No. 1, "Survey Methods".

IV. LAKE WATER QUALITY SUMMARY

The Slatersville Reservoirs were sampled three times during the openwater season of 1972 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from three stations on the Reservoirs and from one or more depths at each station (see map, page v). During each visit, a single depth-integrated (near bottom to surface) sample was composited from the stations for phytoplankton identification and enumeration; and during the last visit, a single five-gallon depth-integrated sample was composited for algal assays. Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll <u>a</u> analysis. The maximum depths sampled were 4 feet at station 1, 10 feet at station 2, and 15 feet at station 3.

The results obtained are presented in full in Appendix B, and the data for the fall sampling period, when the Reservoirs were essentially well-mixed, are summarized below. Note, however, the Secchi disc summary is based on all values. Although the results were similar in value and pattern, summaries are provided for each Reservoir as well as for the combined results.

For differences in the various parameters at the other sampling times, refer to Appendix B.

A. Physical and chemical characteristics:

1. UPPER SLATERSVILLE RESERVOIR -

FALL VALUES

(10/06/72)

Parameter	<u>Minimum</u>	Mean	<u>Median</u>	Maximum
Temperature (Cent.) Dissolved oxygen (mg/l) Conductivity (µmhos) pH (units) Alkalinity (mg/l) Total P (mg/l) Dissolved P (mg/l) NO ₂ + NO ₃ (mg/l) Ammonia (mg/l)	14.1 9.6 90 6.6 10 0.027 0.009 0.050 0.070	15.0 10.1 98 6.9 13 0.033 0.011 0.322 0.208	14.6 10.2 91 6.8 10 0.033 0.012 0.320 0.080	16.3 10.5 108 7.1 25 0.038 0.013 0.820 0.730
		ALL VALUES		
Secchi disc (inches)	54	55	55	56

2. LOWER SLATERSVILLE RESERVOIR -

FALL VALUES

(10/06/72)

<u>Parameter</u>	Minimum	Mean	<u>Median</u>	<u>Maximum</u>
Temperature Dissolved oxygen Conductivity pH Alkalinity Total P Dissolved P NO ₂ + NO ₃ Ammonia	16.0 7.2 91 6.4 10 0.029 0.009 0.080 0.080	16.1 7.3 92 6.5 10 0.032 0.011 0.110 0.173	16.1 7.3 91 6.5 10 0.032 0.010 0.120 0.210	16.2 7.4 93 6.6 10 0.036 0.014 0.130 0.230
		ALL VALUE	<u>:S</u>	
Secchi disc	45	45	45	45

3. COMBINED DATA -

FALL VALUES

(10/06/72)

<u>Parameter</u>	Minimum	<u>Mean</u>	Median	<u>Maximum</u>
Temperature Dissolved oxygen Conductivity pH Alkalinity Total P Dissolved P NO ₂ + NO ₃ Ammonia	14.1 7.2 90 6.4 10 0.027 0.009 0.050 0.070	15.4 9.0 95 6.7 12 0.032 0.011 0.242 0.195	16.0 9.6 91 6.6 10 0.032 0.011 0.125 0.080	16.3 10.5 108 7.1 25 0.038 0.014 0.820 0.730
Secchi disc	40	ALL VALUE	<u>S</u> 56	66

B. Biological characteristics:

Phytoplankton -

Sampling Date	Dominant Genera	Number per ml
06/04/72	 Flagellates Anabaena Cryptomonas Tabellaria Raphidiopsis Other genera 	391 228 145 119 61 188
	Total	1,132
08/01/72	 Chroococcus Microcystis Merismopedia Fragilaria Dinobryon Other genera 	384 309 286 241 151 852
	Total	2,223
10/06/72	 Dictyosphaeriu Cryptomonas Flagellates Scenedesmus Synedra Other genera 	1,175 663 376 301 211 1,114
	Total	3,840

 Chlorophyll a -(Because of instrumentation problems during the 1972 sampling, the following values may be in error by plus or minus 20 percent.)

Sampling Date	Station <u>Number</u>	Chlorophyll <u>a</u> (µg/l)
06/04/72	01* 02* 03**	11.7 6.4 2.3
08/01/72	01 02 03	7.9 4.6 4.1
10/06/72	01 02 03	4.6 16.9 14.4

- C. Limiting Nutrient Study (combined upper and lower Reservoir sample):
 - 1. Autoclaved, filtered, and nutrient spiked -

Spike (mg/1)	Ortho P Conc. (mg/1)	Inorganic N <u>Conc. (mg/l)</u>	Maximum yield (mg/l-dry wt.)
Control	0.008	0.220	0.2
0.006 P	0.014	0.220	0.7
0.012 P	0.020	0.220	2.3
0.024 P	0.032	0.220	3.4
0.060 P	0.068	0.220	2.9
0.060 P + 10.0 I	N 0.068	10.220	15.0
10.0 N	0.008	10.220	0.1

2. Discussion -

The control yield of the assay alga, <u>Selenastrum capri-cornutum</u>, indicates a relatively low level of potential primary productivity in the Reservoirs at the time the sample was collected. Also, the increased yields with increased

^{*} Upper Reservoir.

^{**} Lower Reservoir.

levels of orthophosphorus (to about 0.032 mg/l) show that the Reservoirs were phosphorus limited at that time (note that the addition of only nitrogen resulted in a yield not significantly different from the control yield).

Field data confirm the conclusion that the Reservoirs generally are phosphorus limited. With the exception of the June sample from the lower Reservoir (station 03), all samples showed nitrogen/phosphorus ratios of 14 to 1 or greater (i.e., phosphorus limitation would be expected). However, the June sample at station 03 showed a N/P ratio of about 9 to 1, indicating a slight nitrogen limitation at that time.

D. Trophic Condition:

Data obtained during the Survey indicate both Reservoirs are mildly eutrophic. Nutrient concentrations were generally moderate, and the algal assay indicated a relatively low level of potential primary productivity at the time the assay sample was collected. However, the moderately high chlorophyll \underline{a} and low Secchi disc transparencies are indicative of a more eutrophic condition.

Heavy spring algal blooms have been reported in both Reservoirs, and abundant growths of submerged vegetation occur in the lower Reservoir.

The apparent trophic condition of both Reservoirs is greatly influenced by the very short hydraulic retention time. With such "flow-through" conditions, there is little or no accumulation of nutrients, and Reservoir concentrations remain moderate in spite of annual loadings of 50 lbs/acre/yr of phosphorus and 963 lbs/acre/yr of nitrogen.

V. NUTRIENT LOADINGS (See Appendix C for data)

For the determination of nutrient loadings, the Rhode Island National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page v), except for the high runoff months of March and April when two samples were collected. Sampling was begun in August, 1972, and was completed in July, 1973.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the New England District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were calculated with mean annual concentrations and mean annual flows. Nutrient loadings for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated by using the means of the nutrient loads, in $lbs/mi^2/year$, at stations C-1 and D-1 and multiplying the means by the ZZ area in mi^2 .

Discharges from the Zambarano Memorial Hospital wastewater treament plant were sampled by personnel of the Rhode Island Department of Health on a monthly basis, and flow data were provided.

In the following tables, the nutrient loads attributed to the Branch River are those measured at station A-l minus the Zambarano Hospital loads.

A. Waste Sources:

1. Known municipal -

Name	Pop. <u>Served</u>	<u>Treatment</u>	Mean Flow (mgd)	Receiving <u>Water</u>
Zambarano Mem. Hospital	923	act. sludge	0.080	Clear River

2. Industrial - Unknown

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

	Sou	rce	lbs P/	% of total
	a.	Tributaries (non-point load)	_	
		Branch River Trout Brook Tarkiln Brook	7,940 100 410	76.6 1.0 4.0
	b.	Minor tributaries & immediate drainage (non-point load) -	170	1.6
	d.	Known municipal STP's -		
		Zambarano Memorial Hospital	1,670	16.1
	d.	Septic tanks* -	40	0.4
	e.	Industrial - Unknown	-	-
	f.	Direct precipitation** -	30	0.3
		Total	10,360	100.0
2.	0ut	puts -		
	Lak	e outlet - Branch River	8,630	
3.	Net	annual P accumulation - 1,730	pounds	

^{*} Estimated population of 150 persons within 300 feet of Reservoirs at 0.25 lbs P and 9.4 lbs N/capita/yr.
** Estimated; see Working Paper No. 1.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

2.

Source	lbs N/ yr	% of total
a. Tributaries (non-point 1	oad) -	
Branch River Trout Brook Tarkiln Brook	166,160 3,450 16,540	83.3 1.7 8.3
b. Minor tributaries & imme drainage (non-point loa		3.3
c. Known municipal STP's -		
Zambarano Memorial Hospi	tal 3,330	1.7
d. Septic tanks* -	1,410	0.7
e. Industrial - Unknown	-	-
f. Direct precipitation** -	1,990	1.0
Total	199,390	100.0
Outputs -		
Lake outlet - Branch River	195,940	

3. Net annual N accumulation - 3,450 pounds

^{*} Estimated population of 150 persons within 300 feet of Reservoirs at 0.25 lbs P and 9.4 lbs N/capita/yr.
** Estimated; see Working Paper No. 1.

D. Mean Annual Non-point Nutrient Export by Subdrainage Area:

Tributary	<u>lbs P/mi²/yr</u>	lbs N/mi ² /yr
Branch River	108	2,255
Trout Brook	40	1,380
Tarkiln Brook	45	1,798

E. Yearly Loading Rates:

In the following table, the existing phosphorus loading rates are compared to those proposed by Vollenweider (in press). Essentially, his "dangerous" rate is the rate at which the receiving waters would become eutrophic or remain eutrophic; his "permissible" rate is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic rate would be considered one between "dangerous" and "permissible".

	Tota	l Phosphorus_		l Nitrogen
Units	Total	Accumulated	Total	Accumulated
lbs/acre/yr grams/m²/yr	50.0 5.61	8.4 0.94	963.2 108.0	16.7 1.9

Vollenweider loading rates for phosphorus (g/m²/yr) based on mean depth and mean hydraulic retention time of the Slatersville Reservoirs:

"Dangerous" (eutrophic rate) 2.40
"Permissible" (oligotrophic rate) 1.20

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VII. APPENDICES

APPENDIX A

TRIBUTARY FLOW DATA

LAKE CODE 4402 SLATERSVILLE RESERVOIR

TOTAL DEATHAGE AREA OF LAKE 49.70

Şı)	SUH-DRAINAGE						NORMALIZED FLOWS							
Y~ATUHJAT	ARFA	MAL	FE3	MAH	ΔPK	MAY	JUN	JUL	AUG	SEP	ост	NOV	DEC	MEAN
443541	73.70	161.00	184.00	264.00	233.00	156.00	86.20	42.50	43.80	55.30	63.50	112.00	145.00	128.48
443542	89.70	196.00	723.00	321.00	243.00	189.00	105.00	51.70	53.30	67.30	77.20	136.00	177.00	156.18
44753]	49.7J	196.00	223.03	321.00	243.00	189.00	105.00	51.70	53.30	67.30	77.20	136.00	177.00	156.18
4435C1	7.46	5.40	6.10	ც. ყე	7.80	5.20	2.90	1.40	1.50	1.80	2.10	3.70	4.80	4.28
443501	9.15	50.00	22.40	32.40	28.90	19.30	10.70	5.30	5.40	6.90	7.90	13.90	18.00	15.95
443527	4.4()	9.60	11.00	15.40	13.40	9.30	5.10	2.50	2.60	3.30	3.80	6.70	8.70	7.67

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 89.70 TOTAL FLOW IN = 1882.00 SIM OF SUB-DRAINAGE AREAS = 89.72 TOTAL FLOW OUT = 3759.00

MEAN MONTHLY FLOWS AND DAILY FLOWS

TRIBULABA	40714	AF VH	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
443541	9	72	55.10	30	40.50				
	4)	72	69.10	G	46.20				
	17	7/	141.00	14	150.00				
	11	12	384.00	4	152.00				
	12	72	494.00	y	754.00				
	1	77	2×2.00	6	349.00				
	2	73	311.00	3	1415.00				
	3	73	175.00	3	125.00	17	214.00		
	4	13	312.00	7	324.00	21	154.00		
	5	7 1	189.00	5	199.00				
	5	73	92.30	2	102.00				
	7	73	169.00	15	64.60				
443542	4	72	54.20	30	49.30				
	9	72	A4.10	9	56.20				
	10	72	171.00	14	183.00				
	11	72	466.00	4	145.00				
	12	72	593.00	9	924.00				
	1	73	343.00	6	425.00				
	2	73	377.00	3	1722.00				
	3	73	213.00	3	152.00	17	260.00		
	4	73	379.00	7	394.00	21	187.00		
	5	73	229.00	5	243.00				
	5	73	112.00	>	125.00				
	7	73	132.00	12	78.60				

LAKE CODE 4402 SLATEPSVILLE RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS

		2011 7 111	o nate. Tesu	•					
TRIGUTARY	MONTH	YEAR	MEAN FLOW	YA(.	FLOW	DAY	FLOW	DAY	FLOW
44 35H	٩	72	68.20	30	49.30				
	9	72	84.10	9	56.20				
	10	72	171.00	14	183.00				
	11	72	466.00	4	185.00				
	12	72	593.00	9	924.00				
	1	73	343.00	6	425.00				
	· •	73	377.00	3	1722.00				
	3	73	213.00	3	152.00	17	260.00		
	4	73	379.00	7	394.00	21	187.00		
	5	73	229.00	5	243.00		•		
	5	73	112.00	2	125.00				
	7	73	132.00	12	78.60				
4435C)	H	12	1.90	30	1.40				
	3	7.2	2.20	9	1.50				
	10	72	4.70	14	5.00				
	11	72	12.70	4	5.10				
	12	72	16.10	9	25.30				
	1	73	9.40	6	11.70				
	2	73	16.30	3	47.20				
	3	/3	5.80	3	4.20	17	7.10		
	4	73	10.50	7	10.HO	21	5.10		
	5	7 3	5.30	5	6.70				
	6	73	3.10	2	3.40				
	7	77	3.60	12	2.20				
443501	А	12	6.90	30	5.00				
	9	72	P. 60	9	5.70				
	12	72	17.50	13	20.00				
	11	72	47.70	4	18.90				
	12	72	50.30	9	94.30				
	1	73	35.00	6	43.40				
	2	73	38.50	3	176.00				
	3	7 7	21.70	3	15.50	17	26.60		
	4	73	3A.70	7	40.20	21	19.10		
	4	73	38.70	7	40.20				
	5 6	73	23.40	5	24.80				
		73	11.40	2	12.70				
	7	73	13.60	12	H.00				
443577	Ą	7 2	3.30						
	9	72	4.10						
	10	72	8.40						
	11	72	53.00						
	12	72	29.10						
	1	71	16.80						
	2	73	18.60						
	3	73	10.50						
	4	73	1P.60						
	5	71	11.20						
	5	/3	5.50						
	7	13	6.40						

APPENDIX B

PHYSICAL and CHEMICAL DATA

440201 41 58 43.0 071 36 18.0 SLATERSVILLE RESERVOIR 44127 RHODE ISLAND

						11FP/ 3	ALES	211 0007				
DATE FROM	TIME OF	E DEPTH	COOLO WATER TEMP	00300 D0	00077 TRANSP SECCHI	00094 CNDUCTVY FIFLD	00400 PH	00410 T ALK CACO3	00630 NO2NN03 N-TOTAL	00610 NH3-N TOTAL	00665 PHO5-TOT	00666 PHOS-DIS
TO	DAY	FEET	CENT	MG/L	INCHES	WICKOWHO	SU	MG/L	MI7/L	1467L	MG/L P	MG/L P
72/06/03 72/08/01		30 0000 00 0000	19.1	8.0	40 50	50 80	5.90 6.10	1 0 K 1 0 K		0.090	0.026 0.050	0.009
72/10/06		00 0004	23.0	8.6	56	80 108	6.10 6.70	10K 25	0.290 0.830	0.100 0.730	0.061 0.033	0.021 0.013
	13 (00 0004	14.1	9.5		108	6.60	10K	0.320	0.080	0.03と	0.012

32217

DATE TIME DEPTH CHLPPHYL
FROM OF A
TO DAY FEET UG/L

72/06/03 10 30 0000 11.7J
72/08/01 00 00 0000 7.9J
72/10/06 13 00 0000 4.6J

K* VALUE KNOWN TO BE LESS THAN INDICATED

J* VALUE KNOWN TO BE IN ERROR

440202 41 59 21.0 C71 35 50.0 5LATERSVILLE RESERVOIR 44 RHODE ISLAND

							,11EP#	ALFS		FEET DEP	тн	
DATE TIME FROM OF TO DAY	OF	DEPTH FEET	00017 WATER TEMP CENT	00300 20 467L	JOOTT TRANSP SECCHI INCHES	00094 CNDUCTVY FIFLD MICROMHO	00400 คน Su	00410 T ALK CACO3 MG/L	00630 NO26NO3 N-TOTAL MG/L	00610 NH3-N TOTAL MG/L	00665 PHOS-TOT MG/L P	00666 PHOS-015 MG/L P
72/06/04 72/08/01		0 0000	19.1	∺•ਰ	40 66	60 65	5.90 6.10	10K		0.120 0.150	0.015 0.034	0.009
72/10/06	00 00	0 0004	23.8	н•0	54	65 91	6.19 7.10	10K	0.180	0.120	0.046	0.025
		0 0004	16.3 14.6	10.5 10.2		91 90	7.10 6.45	10K		0.070 0.080	0.027 0.031	0.009

				32217
DATE	TI	4E -	DEPTH	CHI BEHYL
FPOM	OF	-		Δ
10	UA'	1	FEET	USZL
72/06/04	10	50	0000	6.40
72/08/01	UO	00	0000	4.60
72/10/06	12	30	0000	15.9

K* VALUE KNOWN TO BE LESS THAN INDICATED

J* VALUE KNOWN TO BE IN ERROR

440203 41 59 47.0 971 34 59.0 SLATERSVILLE RESERVOIR 44 RHODE ISLAND

11EPALES

2111202

							3		0015	FEET DEP	тн	
DATE FROM	TIME OF	DEPTH	00010 WATER TEMP	00300 DO	00077 TRANSP SECCHI	00094 CNDUCTVY FIFLD	00400 ₽H	00410 T ALK CACO3	00630 NOZNO3 N-TOTAL	00610 NH3-N TOTAL	00545 Paus-101	00666 PHOS-DIS
10	DAY	FEET	CFNT	MG/L	INCHES	MICSOMHO	SU	MG/L	MG/L	MG/L	146/L P	MG/L P
72/06/04	11 1	15 0000	20.0	5.A	56	60	5.80	104	0.080	0.040	0.025	0.014
	11 1	15 0015	17.6	8.6		70	5.80	10	0.090	0.090	0.024	0.020
72/08/01	17 2	25 0000			60	70	6.30	10K	0.210	0.140	0.040	0.017
	17 2	25 0004	24.8	H.4		70	6.20	194	0.200	0.130	0.040	0.019
	17 a	25 0009	22.0	5.8		75	5.90	10K	0.170	0.240	0.051	0.023
72/10/05	11 5	50 0000			45	93	6.67	10K	0.080	0.080	0.036	0.014
	11 5	50 0004	16.2	7.2		91	6.50	10K	0.130	0.210	0.032	0.010
	11 9	50 0010	16.0	7.4		91	6.45	10<	0.120	0.230	0.024	0.009

DATE FROM TO	OF	-	DEPTH FFFT	32217 CHLPPHYL A UG/L
72/06/04 72/08/01 72/10/05	11	15 25	0000	2.3U 4.1U 14.4U

K: VALUE KNOWN TO BE LESS THAN INDICATED

J* VALUE KNOWN TO BE IN ERROR

APPENDIX C

TRIBUTARY and WASTEWATER TREATMENT PLANT DATA

440241
41 58 30.0 071 37 00.0
BRANCH RIVER
44 7.5 GEORGIAVILLE
I/SLATERSVILLE RESERVOIR
OLD ST HWY 42 BRDG BELO GLENDALE STP
11EPALES 2111204
4 0000 FEET DEPTH

0.75	T =		00630	00625	00610	00671	00665
DATE	TIME D	PEPIH	N058N03	TOT KJEL	NH3-N	PHOS-NIS	PHOS-TOT
FROM	OF		N-TOTAL	N	TOTAL	ORTHO	
TO	DAY F	FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/08/26	11 15		0.235	0.600	0.010	0.014	0.074
72/09/09	08 40		0.445	0.400	0.138	0.019	0.056
72/10/14	10 40		0.190	0.550	0.096	0.008	0.028
72/11/04	09 40		0.169	0.400	0.092	0.011	0.029
72/12/09	09 15		0.147	1.300	0.050	0.005K	0.021
73/01/06	10 20		0.210	0.270	0.034	0.006	0.010
73/02/03	09 45		0.132	0.600	0.056	0.022	0.060
73/03/03			0.336	0.580	0.039	0.008	0.025
73/03/17	10 15		0.350	0.210	0.044	0.006	0.020
73/04/07	11 45		0.132	0.180	0.027	0.005K	0.010
73/04/21	13 00		0.190	0.305	0.015	0.008	0.020
73/05/05			0.160	0.400	0.042	0.010	0.020
73/06/02	09 30		0.018	0.230	0.030	0.007	0.130
73/07/12	10 25		0.294	0.640	0.064	0.015	0.035

440202
42 00 00.0 071 35 00.0
BRANCH RIVER
44 7.5 GEORGIAVILLE
0/SLATERSVILLE PESERVOIR
ST HWY 5 BRDG E EDGE OF SLATERSVILLE
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM	TIME DEPTH	00630 NO24N03 N-TOTAL	00625 TOT KJEL N	00610 NH3-N TOTAL	00671 PHOS-DIS ORTHO	00665 PHOS-TOT
TO	DAY FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/08/26	10 30	0.163	0.800	0.021	0.006	0.030
72/09/09	10 10	0.147 0.169	0.750 0.500	0.121 0.126	0.009 0.009	0.040 0.034
72/11/04		0.218	0.300	0.095	0.008	0.035
72/12/09	12 30	0.120	0.320	0.036	0.005K	0.035
73/01/06		0.176 0.176	0.110 0.520	0.032 0.039	0.005K 0.013	0.015 0.045
73/03/03		0.252	0.350	0.021	0.005K	0.020
73/03/17	09 15	0.240	0.310	0.011	0.005K	0.015
73/04/07	11 15	0.126 0.120	1.680 0.370	0.044	0.005K 0.005K	0.015 0.015
73/04/21		0.120	0.400	0.033	0.007	0.039
73/07/12		0.084	0.600	0.044	0.006	0.020

4402A3
41 58 30.0 071 38 00.0

BRANCH RIVER
44 7.5 CHEPACHET

O/SLATERSVILLE RESERVOIR

VICTORY HWY BRDG ABOV GLENDALE STP

11EPALFS 2111204
4 0000 FEET DEPTH

			00630	00625	00610	00671	00665
DATE	LIME	DEPTH	N056N03	TOT KJEL	NH3-N	PHOS-DIS	PHOS-TOT
FROM	0F		N-TOTAL	N	TOTAL	ORTHO	
10	DAY	FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/08/26	11 29	5	0.300	0.900	0.022	0.015	0.066
72/09/09	08 49	5	0.558	0.450	0.153	0.008	0.037
72/10/14	11 00)	0.200	0.450	0.105	0.009	0.030
72/11/04	10 00)	0.200	0.300	0.088	0.009	0.029
72/12/09	09 40)	0.147	0.420	0.035	0.007	0.018
73/01/06	10 19	5	0.220	0.300	0.039	0.006	0.015
73/02/03	13 45	5	0.105	0.440	0.044	0.011	0.030
73/03/03			0.357	0.320	0.050	0.005K	0.020
73/03/17	10 30)	0.360	0.260	0.031	0.007	0.020
73/04/07	12 05	5	0.160	0.160	0.017	0.005K	0.015
73/04/21			0.198	0.780	0.050	0.006	0.020
73/05/05			0.150	0.460	0.063	0.008	0.020
73/06/02	10 30)	0.220	0.880	0.081	0.008	0.030
73/07/12	10 10)	0.310	0.680	0.094	0.019	0.040

4402B1.
41 00 00.0 071 35 00.0
BRANCH RIVER
44 7.5 GEORGIAVILLE
0/SLATERS RESFRVOIR
ST HWY 5 BRDG E EDGE OF SLATERSVILLE
11EPALES 2111204
4 0000 FEET DEPTH

1

			00630	00625	00610	00671	00665
DATE	TIME	DEPTH	E0N250N	TOT KJEL	NH3-N	PHOS-DIS	PHOS-TOT
FROM	OF		N-TOTAL	N	TOTAL	ORTHO	
TO	DAY	FFET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/09/26	10 40)	0.159	0.425	0.018	0.005K	0.031
72/09/09	08 39	5	0.152	0.600	0.129	0.005K	0.038
72/10/14	10 20)	0.160	0.550	0.138	0.010	0.036
72/11/04	10 49	5	0.221	0.300	0.088	0.008	0.039
72/12/09	12 30)	0.189	0.380	0.039	0.009	0.022
73/01/06	10 00)	0.220	0.220	0.034	0.006	0.015
73/02/03	10 19	5	0.250	0.520	0.040	0.011	0.040
73/03/03	10 19	5	0.273	0.230	0.030	0.005K	0.020
73/03/17	09 19	5	0.290	0.270	0.046	0.006	0.020
73/04/07	11 20)	0.126	0.170	0.005K	0.005K	0.015
73/04/21	09 49	5	0.132	0.330	0.017	0.005K	0.015
73/05/05	09 30)	0.130	0.640	0.046	0.006	0.025
73/06/02	10 00)	0.110	0.460	0.026	0.007	0.044
73/07/12	08 29	5	0.084	0.420	0.039	0.005K	0.020

4402C1
41 59 30.0 071 35 00.0
TROUT BROOK
44 7.5 GEORGIAVILLE
T/SLATERSVILLE RESERVOIR
TIFFT RD BRDG S OF SLATERSVILLE
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM	TIME DEPTH	00630 N025N03 N-TOTAL	00625 TOT KUEL	00610 NH3-N Total	00671 PHOS-DIS	00665 PHOS-TOT
TO	DAY FEET	MG/L	N MG/L	MG/L	ORTHO MG/L P	MG/L P
10	DAT TECT	407 L	1076	11(7/ [HC/L F	MOZEF
72/08/26	10 55	0.048	0.350	0.012	0.005K	0.011
72/09/09	08 50	0.028	0.300	0.107	0.005K	0.012
72/10/14	10 40	0.045	0.350	0.096	0.005K	0.014
72/11/04	10 20	0.038	0.150	0.060	0.005K	0.011
72/12/09	10 00	0.126	0.460	0.035	0.005K	0.011
73/01/06	10 15	0.170	0.460	0.052	0.005K	0.005K
73/02/03	11 15	0.126	0.440	0.064	0.010	0.065
73/03/03	10 30	0.176	0.180	0.036	0.005K	0.005K
73/03/17	09 30	0.096	0.170	0.018	0.005K	0.010
73/04/07	10 55	0.115	0.210	0.026	0.005K	0.010
73/04/21	10 00	0.075	0.320	0.027	0.005K	0.010
73/05/05	10 15	0.048	1.540	0.087	0.006	0.015
73/06/02	09 00	0.020	0.290	0.022	0.005K	0.025K
73/07/12	08 20	0.026	0.520	0.063	0.005K	0.015

4402D1
41 58 00.0 071 36 00.0
TARKILN BROOK
44 7.5 GEORGIAVILLE
T/SLATERSVILLE RESERVOIR
DOUGLAS PIKE BRDG SE OF NASONVILLE
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME DEPTH OF DAY FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
72/08/26	12 05	0.042	0.950	0.033	0.005K	0.015
72/09/09		0.036	0.350	0.084	0.005K	0.016
72/10/13	10 20	0.067	0.450	0.097	0.005K	0.016
72/11/04	09 20	0.047	0.300	0.053	0.005K	0.015
72/12/09	08 50	0.054	0.240	0.012	0.005K	0.008
73/01/06	09 30	0.095	0.180	0.019	0.005K	0.005K
73/02/03	09 00	0.093	0.400	0.017	0.008	0.020
73/03/03	09 00	0.089	1.420	0.120	0.005K	0.010
73/03/17	13 30	0.046	0.290	0.024	0.005K	0.010
73/04/07	11 50	0.029	0.220	0.008	0.005K	0.010
73/04/21	13 15	0.026	0.270	0.015	0.005K	0.010
73/05/05		0.035	0.810	0.069	0.006	0.015
73/06/02	11 00	0.010K	0.370	0.019	0.005K	0.015
73/07/12	10 30	0.039	0.390	0.048	0.005K	0.015

4492E1

41 57 00.0 071 38 30.0 CHEPACHET RIVER 44 7.5 CHEPACHET T/SLATERSVILLE RESERVOIR COOPER RD BRDG E OF MAPLEVILLE 11EPALES 2111204

0000 FEET DEPTH

			00630	00625	00610	00671	00665
DATE	TIME O	HT93	N028N03	TOT KJEL	NH3-N	PHOS-DIS	PHOS-TOT
FROM	OF		N-TOTAL	N	TOTAL	ORTHO	
TO	DAY F	FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/08/26	11 50		0.174	0.650	0.022	0.005K	0.018
72/09/09	08 50		0.137	0.300	0.088	0.005K	0.014
72/10/13	11 15		0.078	0.300	0.074	0.005K	0.014
72/11/04	10 20		0.117	0.400	0.072	0.010	0.021
72/12/09	10 40		0.090	0.330	0.024	0.005K	0.010
73/01/06	11 15		0.132	0.290	0.026	0.005K	0.005K
73/02/03	14 05		0.069	0.460	0.021	0.008	0.015
73/03/03			0.168	0.290	0.035	0.005K	0.015
73/03/17	10 50		0.120	0.280	0.030	0.005K	0.015
73/04/07	14 00		0.052	0.370	0.010	0.005K	0.010
73/04/21	11 30		0.092	0.260	0.018	0.005K	0.010
73/05/05			0.075	0.300	0.032	0.007	0.020
73/06/02	11 15		0.010K	0.270	0.010	0.005K	0.015
73/07/12	10 00		0.138	0.380	9.046	0.005K	0.025

4402F1
41 57 30.0 071 39 00.0
CLEAR RIVER
44 7.5 CHEPACHET
T/SLATERSVILLE RESERVOIR
ST HWY 102 BROG BELO HARRISVILLE STP
11EPALES 2111204
4 0000 FEET DEPTH

			00630	00625	00610	00671	00665
DATE	TIME	DEPTH	N058N03	TOT KJEL	NH3-N	PHOS-DIS	PHOS-TOT
FROM	0F		N-TOTAL	N	TOTAL	ORTHO	
10	DAY	FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/08/26			0.240	0.700	0.115	0.010	0.058
72/09/09	09 0	0	0.296	0.400	0.164	0.006	0.046
72/10/13	11 2	5	0.100	0.350	0.084	0.007	0.031
72/11/04	10 4	0	0.126	0.325	0.073	0.008	0.032
73/01/06	10 4	7	0.176	0.440	0.043	0.006	0.015
73/02/03	13 5	5	0.100	0.480	0.042	0.010	0.030
73/03/03			0.260	0.420	0.052	0.009	0.020
73/03/17	10 4	0	0.168	0.220	0.023	0.005K	0.020
73/04/07	13 3	0	0.088	1.760	0.058	0.005K	0.015
73/04/21	14 0	0	0.100	0.310	0.025	0.005K	0.020
73/05/05			0.084	1.100	0.120	0.010	0.020
73/06/02	10 0	0	0.180	0.520	0.052	0.006	0.030
73/07/12	10 1	5	0.180	0.460	0.058	0.007	0.035

4402F2
41 58 30.0 071 40 30.0
CLEAR RIVER
44 7.5 CHEPACHET
T/SLATERSVILLE RESERVOIR
ST HWY 98 BRDG ABOV HARRISVILLE STP
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM	TIME DEPTH	00630 00630 N-TOTAL	00625 TOT KJEL N	00610 NH3-N Total	00671 PHOS-DIS ORTHO	00665 PHOS-TOT
TO	DAY FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/08/26 72/09/09		0.230	0.550	0.023	0.028	0.048
72/10/14		0.330 0.071	0.450 0.400	0.150 0.061	0.013 0.009	0.063 0.027
72/11/04	- · · -	0.078	0.300	0.073	0.008	0.024
73/01/06 73/02/03		0.160 0.065	0.250 0.385	0.024 0.016	0.007 0.008	0.012 0.015
73/03/03	10 00	0.168	0.190	0.014	0.009	0.009
73/03/17	11 10 13 00	0.126 0.052	0.240 0.155	0.010	0.005K 0.009	0.005K 0.015
73/04/21	10 15	0.074	0.250	0.015	0.005K	0.020
73/05/05 73/06/02	- · · · -	0.056 0.098	0.250 0.370	0.028 0.048	0.008 0.008	0.020 0.035
73/07/12		0.176	0.440	0.075	0.015	0.035

4402F3
41 58 00.0 071 43 30.0
CLEAR RIVER
44 7.5 CHEPACHET
T/SLATERSVILLE RESERVOIR
1 MI NW OF PASCOAG BELO WALLUM LK ST STP
11EPALES 2111204
4 0000 FEET DEPTH

2475	Time sesti	00630	00625	00610	00671	00665
DATE	TIME DEPTH	NOSEN03	TOT KJEL	NH3-N	PHOS-DIS	PHOS-TOT
FROM	0F	N-TOTAL	N	TOTAL	ORTHO	
10	DAY FEET	MG/L	4G/L	MG/L	MG/L P	MG/L P
72/08/26	14 10	0.022	0.700	0.023	0.009	0.030
72/09/09	09 05	0.017	0.300	0.024	0.005K	0.020
72/10/14	10 30	0.040	0.350	0.056	0.007	0.030
72/11/04	10 45	0.023	0.250	0.044	0.006	0.023
72/12/09	10 45	0.056	0.350	0.015	0.015	0.019
73/01/06	10 45	0.060	0.190	0.018	0.010	0.020
73/02/03	10 45	0.120	0.400	0.023	0.008	0.015
73/03/03	11 00	0.069	0.230	0.025	0.005K	0.015
73/03/17	11 50	0.010K	0.180	0.021	0.005K	0.010
73/04/11	13 30	0.010K	0.230	0.005K	0.007	0.015
73/04/21	10 45	0.010K	0.215	0.012	0.005K	0.015
73/05/05	10 45	0.010K	0.420	0.045	0.005	0.017
73/06/02	11 10	0.010K	0.540	0.033	0.006	0.015
73/07/12	09 05	0.020	0.440	0.026	0.005K	0.015

4402F4

42 00 00.0 071 45 30.0

CLEAR RIVER

44 7.5 OXFORD

T/SLATERSVILLE RESERVOIR

BRDG NE OF WALLUM LK ABOV SANITARIUM STP

11EPALES 2111204

O000 FEET DEPTH

		00630	0 0 625	00610	00671	00665
DATE	TIME DEPTH	K0N%20N	TOT KJEL	NH3-N	PHOS-DIS	PHOS-TOT
FROM	OF	N-TOTAL	N	TOTAL	ORTHO	
CT	DAY FEET	MG/L	4G/L	MG/L	MG/L P	MG/L P
72/08/26	14 45	0.019	0.400	0.020	0.005K	0.005K
72/09/09	09 15	0.045	0.150	0.039	0.005K	0.005K
72/10/14	10 40	0.065	0.200	0.075	0.005K	0.005K
72/11/04	11 00	0.060	0.150	0.048	0.005K	0.005K
72/12/09	11 15	0.147	0.350	0.014	0.005K	0.006
73/01/06	11 15	0.036	0.170	0.014	0.005K	0.005K
73/02/03	11 00	0.048	0.360	0.010	0.005K	0.005
73/03/03	11 20	0.032	0.150	0.030	0.005K	0.005K
73/03/17	13 00	0.025	0.240	0.013	0.005K	
73/04/11	13 40	0.015	0.190	0.005K	0.005K	0.005
73/04/21	11 00	0.020	0.200	0.019	0.005K	0.005K
73/05/05	11 10	0.022	0.230	0.034	0.005K	0.005K
73/06/02	10 50	0.017	4.600	0.315	0.005K	0.015
73/07/12	09 20	0.013	0.130	0.012	0.005K	0.005K

4402G1
41 58 00.0 071 42 00.0
PASCOAG RIVER
44 7.5 CHEPACHET
T/SLATERSVILLE RESERVOIR
BRDG BETWEEN PASCOAG AND BRIDGETON
11EPALES 2111204
4 0000 FEET DEPTH

DATE		00630 N028N03	00625 TOT KJEL	00610 NH3-N	00671 PHOS-DIS	00665 PHOS-TOT
FROM	OF	N-TOTAL	N	TOTAL	ORTHO	
TO	DAY FEET	MG/L	MG/L	MG/L	MG/L P	MG/L P
72/08/26		0.104	1.200	0.075	0.160	0.340
72/09/09	08 55	0.137	0.600	0.178	0.031	0.105
72/10/14		0.100	0.250	0.110	0.031	0.072
72/11/04	U9 52	0.041	0.300	0.048	0.022	0.065
72/12/09	10 05	0.100	0.540	0.022	0.013	0.028
73/01/06	10 00	0.176	0.580	0.050	0.021	0.060
73/02/03	10 05	0.160	0.650	0.042	0.013	0.040
73/03/03	10 30	0.092	0.630	0.058	0.022	0.070
73/03/17	11 30	0.220	1.360	0.130	0.058	0.230
73/04/11	13 15	0.024	0.260	0.015	0.008	0.015
73/04/21	10 30	0.092	0.810	0.042	0.032	0.140
73/05/05	10 15	0.027	0.360	0.046	0.014	0.035
73/05/02	10 10	0.036	0.670	0.115	0.016	0.020
73/07/12	09 00	0.105	0.540	0.200	0.028	0.060

440250
41 58 30.0 071 45 00.0
WALLUM LAKE ST. SAN.
44 7.5 CHEPACHET
T/SLATFRSVILLE RES
CLEAR RIVER

11FPALES 2141204 4 0000 FEET DEPTH

DATE FROM TO	TIME DE OF DAY FE	00630 EPTH NO26NO3 N-TOTAL FET MG/L	00625 TOT KJEL N 46/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
72/10/04 CP(T)- 72/10/04 72/11/09	14 45	3.100	7.700	1.890	5.600	10.400	0.100	0.100
CP(T)- 72/11/09	15 15	0.410	30.000	2.100	1.850	7.600	0.080	0.070
72/12/06 CP(T)- 72/12/06	14 45	4.500	17.800	2.100	5.600		0.090	0.090
73/01/04 CP(T) - 73/01/04	14 45	5.760	10.500	0.810	2.520	7.700	0.080	0.070
73/02/07 CP(T)- 73/02/07 73/03/14	15 00	1.370	15.400	6.600	3.600	4.900	0.080	0.080
73/03/14 CP(T)~ 73/03/14 73/04/12	15 00	2.000	5.300	0.670	5.000	5.500	0.060	0.070
73/04/12 73/04/12 73/05/09	15 00	3.125	3.400	0.525	5.700	6.300	0.080	0.080
CP(T)- 73/05/09 73/06/06	15 00	4.300	5.800	0.820	6.000	6.900	0.060	0.075
73/05/04 CP(T) = 73/06/06 73/07/12	15 00	5.900	2.500	0.440	6.600	7.000	0.080	0.080
CP(T) - 73/07/12		3.360	2.200	0.210	4.300	5.500	0.080	0.080