

Region SCR County Grant Report Date 8/1989 Classification LAL/LFF
Water Body: Indian Creek, Trib to Indian Creek
Discharger: Dickeyville WWTP

If stream is classified as Limited Forage Fish (LFF) or Limited Aquatic Life (LAL), check any of the following Use Attainability Analysis factors that are identified in the classification report:

- ☐ Naturally occurring pollutant concentrations prevent the attainment of use
- ☒ Natural, ephemeral, intermittent or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met
- ☐ Human caused conditions or sources of pollution prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place
- ☐ Dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or operate such modification in a way that would result in the attainment of the use
- ☒ Physical conditions related to the natural features of the water body, such as the lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses
- ☐ Controls more stringent than those required by sections 301(b) and 306 of the Act would result in substantial and widespread economic and social impact

Supporting Evidence in the report (include comments on how complete/thorough data is)

- ☒ Biological Data (fish/invert) invert, fish
- ☐ Chemical Data (temp, D.O., etc.)
- ☒ Physical Data (flow, depth, etc.)
- ☒ Habitat Description
- ☒ Site Description/Map
- ☒ Other: photos

Historical Reports in file:

8/1989 - Roger Schlessel
(7/22/1975) - Tom Bainbridge

Additional Comments/How to improve report:

- should LFF portion be WW?
- is low flow the limiting factor?
- check w/ region on class'n

claw change

TRIBUTARY TO AND INDIAN CREEK

AT DICKEYVILLE

TRIENNIAL STANDARDS REVIEW

DICKEYVILLE WWTP

AUGUST, 1989

ROGER SCHLESSER, SOUTHERN DISTRICT

BUREAU OF WATER RESOURCE MANAGEMENT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

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SUMMARY

The tributary to Indian Creek was originally classified as marginal (E). Indian Creek was classified as intermediate fish and aquatic life (D). This review indicates that the last 1.3 miles of Indian Creek should be classified full fish and aquatic life (B). The tributary and the remainder of Indian Creek should remain classified as the existing classification.

INTRODUCTION

This paper presents the results of an evaluation of the stream classification for a tributary to, and Indian Creek which are the receiving streams for the Dickeyville Municipal Wastewater Treatment Plant. The evaluation was conducted as part of the Triennial Standards Review.

The sites being reviewed are listed in NR 104.05 (Appendix V). These sites received a variance due to one or more of the following criteria:

- (a) The presence of inplace pollutants,
- (b) Low natural stream flow,
- (c) Natural background conditions, and
- (d) Irretrievable cultural alterations

GENERAL DESCRIPTION

The tributary to Indian Creek in the vicinity of the outfall has no base flow. Flow is limited to the WWTP effluent. The effluent flows approximately 0.8 mile before the juncture with Indian Creek.

Indian Creek from the juncture with the tributary to its mouth is approximately 3.1 miles in length. The stream corridor is mostly wooded pasture with some upland areas being in agricultural crops. Most of Indian Creek can best be described as having an extremely high gradient and subject to flash flooding. Indian Creek originates in the ridge tops and quickly drops to the valley floor before flowing into the Platte River. The substrate consists of bedrock and a combination of boulders and rubble. Stream width in many areas average 40' to 50'. Flood flows have really moved the bed material around which has created a wide channel, but due to normally low stream flow, water is confined to only a small portion of it. Pools are generally absent except at bridge crossings. Due to the constantly moving bed material instream cover is nearly absent and has limited colonization by macroinvertebrates.

The tributary to Indian Creek at the outfall has no base flow and consequently would have a Q_{710} of 0.0 cfs. The USGS computed Q_{72} of Indian Creek is <0.01 cfs and the Q_{710} is also <0.01 cfs. The USGS monitoring station is located approximately 1.7 miles from Indian Creek's mouth. Table 1 contains the

actual flows at the site taken from the publication "Low-Flow Characteristics of Wisconsin Streams at Sewage Treatment Plants and Industrial Plants".

Table 1: Low-Flow Characteristics, Indian Creek

<u>Drainage Area</u> <u>(mi²)</u>	<u>Date</u>	<u>Discharge</u> <u>(ft³/s)</u>
3.72	June 22, 1972	0.05
	August 30, 1972	0.01 (est.)
	August 2, 1973	1.79
	October 16, 1975	0.94
	July 27, 1976	0.33
	October 27, 1976	0.35

STREAM HABITAT

The tributary to Indian Creek is best described as high gradient, straight, little habitat, and carries only effluent flow. The upper reaches of Indian Creek are also high gradient, low flow, subject to flash flooding-relocation of bed material and unstable habitat. Stream bank erosion and the resultant sedimentation are also problems along much of the stream. Not until the lower reaches of Indian Creek does the gradient drop, pools begin to develop and the stream begins to meander. Only in this section of stream is habitat sufficient to support a decent fishery.

WATER QUALITY

Not much can be said about stream water quality. The tributary's flow is primarily effluent. Consequently, how well the WWTP is operating determines

the quality of water in this section. Also much of the upper reaches of Indian Creek is primarily effluent flow. Watercress was present at the two biological sampling sites which would indicate some groundwater discharge. Either filamentous algae or Potamogeton sp. was also abundant at these sites which would indicate a good quantity of nutrients entering the stream.

BIOLOGY

Macroinvertebrate samples were taken October 12, 1988 at two locations (Map #1). The results are contained in Tables II and III. According to the HBI data the first site sampled at a private drive had "fairly poor water quality". The sample was dominated by Asellus intermedius (63%). Due to the unstable habitat in Indian Creek Asellus intermedius is a likely inhabitant. Species which require stable habitat to colonize were mostly absent or present in very low numbers.

The second site sampled was below Indian Creek Road. This site was considered to have "poor water quality". It was also dominated by Asellus intermedius (71%). Due to flash flooding and movement of bed material the harsh environment of Indian Creek is suitable for only a limited number of macroinvertebrates which require a stable habitat.

A backpack shocker was used to sample Indian Creek at a private drive (Map #1). A large majority of the fish found were present under the bridge. Most of Indian Creek in this section is flat and shallow. Habitat and cover is so

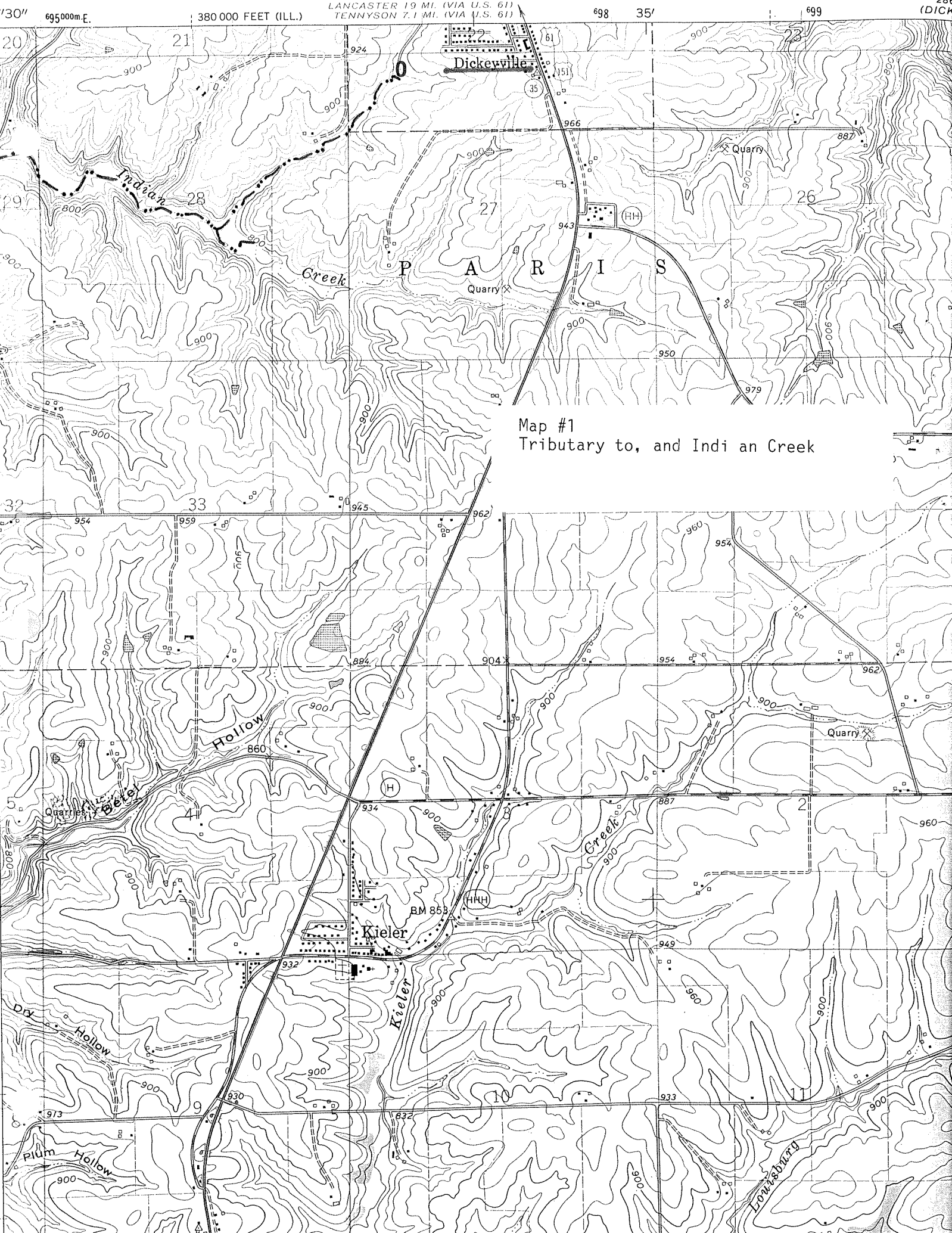
limited that wherever a little cover is present fish were found. Even branches and tree limbs laying in the water had small fish under them.

The site was dominated by creek chubs, which isn't surprising. Most of the sample was dominated by tolerant species but a few intolerant species were present also. Due to the wide range of flow conditions, including flooding and the unstable habitat the fishery in Indian Creek probably changes frequently throughout the year. In discussions with a local resident he had mentioned that sport fish move into the mouth of Indian Creek during the spring. Non-sport species probably also move into the lower reaches from the Platte and Mississippi Rivers during the spring spawning run.

Consequently, this section of Indian Creek should be upgraded to fish and aquatic life. As long as sufficient flows are present in this section, a number of these fish probably remain in Indian Creek.

WWTP

Appendix II contains the 1988-89 DMR monthly averages for flow, BOD and TSS. According to this data the WWTP was having problems in February of 1988. According to the Wastewater Engineer they were experiencing filamentous organism problems. Chlorine dosing seems to have helped get the problem under control and has resulted in effluent limits generally in the single digits.



LANCASTER 19 MI. (VIA U.S. 61)
TENNYSON 7.1 MI. (VIA U.S. 61)

Map #1
Tributary to, and Indi an Creek

Indian Creek
Macroinvertebrate Sampling Site
Indian Creek Road

HBI _ 6.625 Rep1 _ Rep2 _ Rep3 _
 Sample ID # _ 881012-22-04 Waterbody Name _ INDIAN CR.
 Water Temp (Celsius) _ Dissolved Oxygen (mg/l) _
 Sample Location: SE NE S29 T 2N R 2W Master Waterbody # _
 Project Name _ TRIENNIAL STANDARDS Storet Station # _
 Ave. Stream Width (Ft.) at Site _ 1.5 Ave. Stream Depth (Ft.) at Site _ 0.4
 Collector _ SCHLESSER, R. Field # 04 Rep 1 _
 Measured Velocity (fps) _
 Est. Velocity (fps) _
 Sorter _ GEHRING, T. _ Moderate (0.5-1.5)
 Est % of sample sorted _ 10
 Taxonomist _ DIMICK, J. Sampled Habitat
 Location Description _ DWNS. OF PRIVATE DRIVE; STREAM HAS _ 1. Riffle
 _ EXTREME FLASH FLOODING PROBLEMS

Est. Time Spent Sampling (Min.) _ 3 _

Sampling Device _ 1. D Frame

Substrate at Site Location (%)

0.0 Bedrock	20.0 Rubble	5.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	45.0 Gravel	15.0 Silt	0.0 Detritus	15.0 Debris/Veg

Substrate Sampled (%) (Same as above Yes)

0.0 Bedrock	0.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	0.0 Gravel	0.0 Silt	0.0 Detritus	0.0 Debris/Veg

Aquatic Vegetation 5 % of Total Stream Channel at Sampling Site

Observed Instream Water Quality Indicators (Perceived WQ _ Fair _)

	Not Present	Insig- nificant	Sig- nificant	Comments
--	-------------	-----------------	---------------	----------

Turbidity	1			
Chlorine or Toxic Scour	1			
Macrophytes		2		H2O CRESS
Filamentous Algae			3	POTAMOGETON SP.
Planktonic Algae	1			
Slimes	1			
Iron Bacteria	1			

Factors Which May Be Affecting Habitat Quality

Sludge Deposits	1	
Silt and Sediment		3
Channel Ditching	1	
Down/Up Stream Impoundment	1	
Low Flows		3
Wetlands	1	

Pollutant Sources

Livestock Pasturing		3
Barnyard Runoff		3
Cropland Runoff		3
Tile Drains		
Septic Systems		
Stream Bank Erosion		3
Urban Runoff	2	
Construction Runoff	2	
Point Source(Specify Type)	2	
Other (Specify)		DICKEYVILLE WWTP

*** SOUTHERN DISTRICT DISTRICT BIOTIC INDEX REPORT ***

SAMPLE ID# 881012-22-04

7

***	TAXA	***	TAXONOMIC	TOL	ORGANISM	ORGANISM			
		SPECIES	KEY	VAL	ID	COUNT	REP1	REP2	REP3
			USED						
TRICHOPTERA									
HYDROPSYCHIDAE									
HYDROPSYCHE		BETTENI	*1	6.00	04040201	1		0	
CERATOPSYCHE		SLOSSONAE	*1	4.00	04040706	1		0	
COLEOPTERA									
ELMIDAE									
OPTIOSERVUS			*2	4.00	07020500	30		0	
STENELMIS			*2	5.00	07020600	7		0	
DIPTERA									
CHIRONOMIDAE									
EUKIEFFERIELLA		SP.B	*3	5.00	08052302	1		0	
TIPULIDAE									
TIPULA			*2	4.00	08141200	1		0	
ISOPODA									
ASELLIDAE									
ASELLUS		INTERMEDIUS	*4	8.00	10010101	71		0	
*** TOTALS: ***						112			0
*** BIOTIC INDEX: ***						6.625			

Taxonomic Key Code References

*1	Hilsenhoff 1981,86
*2	Hilsenhoff 1981
*3	Hilsenhoff 1981,85
*4	Williams 1972

HBI _ 7.610 Rep1 _ Rep2 _ Rep3 _
 Sample ID # _881012-22-05 Waterbody Name _INDIAN CR. 8
 Water Temp (Celsius) _ Dissolved Oxygen (mg/l) _
 Sample Location: SW NW S29 T 2N R 2W Master Waterbody # _
 Project Name _TRIENNIAL STANDARDS Storet Station # _
 Ave. Stream Width (Ft.) at Site _2.0 Ave. Stream Depth (Ft.) at Site _0.4
 Collector _SCHLESSER, R. Field # 05 Rep 1_
 Measured Velocity (fps) _
 Est. Velocity (fps) _
 Sorter _GEHRING, T. _Moderate (0.5-1.5)
 Est % of sample sorted _10 Sampled Habitat
 Taxonomist _DIMICK, J. _1. Riffle
 Location Description _DWSN. INDIAN CR. ROAD; STREAM HAS
 _EXTREME FLASH FLOODING PROBLEMS

Est. Time Spent Sampling (Min.) _ 4__

Sampling Device _1. D Frame

Substrate at Site Location (%)

0.0 Bedrock	5.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	45.0 Gravel	20.0 Silt	0.0 Detritus	30.0 Debris/Veg

Substrate Sampled (%) (Same as above Yes)

0.0 Bedrock	0.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	0.0 Gravel	0.0 Silt	0.0 Detritus	0.0 Debris/Veg

Aquatic Vegetation 25 % of Total Stream Channel at Sampling Site

Observed Instream Water Quality Indicators (Perceived WQ _Fair____)

	Not Present	Insig- nificant	Sig- nificant	Comments
Turbidity	1			
Chlorine or Toxic Scour	1			
Macrophytes			2	H2O CRESS, POTAMOGETON SP.
Filamentous Algae		2		
Planktonic Algae	1			
Slimes	1			
Iron Bacteria	1			

Factors Which May Be Affecting Habitat Quality

Sludge Deposits	1	
Silt and Sediment		3
Channel Ditching		3
Down/Up Stream Impoundment	1	
Low Flows		2
Wetlands		2

Pollutant Sources

Livestock Pasturing		3
Barneyard Runoff		3
Cropland Runoff		3
Tile Drains		
Septic Systems		
Stream Bank Erosion		3
Urban Runoff	2	
Construction Runoff	2	
Point Source(Specify Type)	2	
Other (Specify)		DICKEYVILLE WWTP

*** SOUTHERN DISTRICT DISTRICT BIOTIC INDEX REPORT ***

SAMPLE ID# 881012--22-05

PAGE

*** TAXA ***	*** SPECIES ***	TAXONOMIC KEY USED	TOL VAL	ORGANISM ID	ORGANISM COUNT	REP1	REP2	REP
EPHEMEROPTERA								
EPHEMERELLIDAE								
EPHEMERELLA	INERMIS (sp.A)	*1	1.00	02040411	1		0	
COLEOPTERA								
ELMIDAE								
OPTIOSERVUS		*2	4.00	07020500	1		0	
STENELMIS	CRENATA	*3	5.00	07020601	1		0	
DIPTERA								
CHIRONOMIDAE								
CRICOTOPLUS	NR.BICINCTUS	*3	6.00	08051301	2		0	
	NR.TRIFACIA	*3	7.00	08051303	3		0	
ORTHOCLADIUS	SP.D	*3	5.00	08054004	1		0	
SIMULIIDAE								
SIMULIUM	VITTATUM	*4	7.00	08110217	22		0	
ISOPODA								
ASELLIDAE								
ASELLUS	INTERMEDIUS	*5	8.00	10010101	87		0	
PELECYPODA								
SPHAERIIDAE								
POOR SPECIMEN		*6		15010400	1		0	
OLIGOCHAETA		*7		16000000	3		0	

*** TOTALS: ***

122

0

*** BIOTIC INDEX: *** 7.610

Taxonomic Key Code References

- *1 Hilsenhoff 1981,82
- *2 Hilsenhoff 1981
- *3 Hilsenhoff 1981,85
- *4 Hilsenhoff 1985
- *5 Williams 1972
- *6 Pennak 1978
- *7 Klemm 1985

TABLE: IV List of fish for sampling site: At bridge on private drive

DATE: 10/12/88 Twn 2N, R2W, Sec. 29, 1/4 1/4, SWNE STREAM: Indian Creek

Station mileage: 2.1D County: 22

SOURCE OF DATA: 05 GEAR: 3 EFFORT: 03

CODE	COMMON NAME	FAMILY	GENUS/SPECIES	# FISH	TOLERANCE LEVEL
M06	CENTRAL STONEROLLER	CYPRINIDAE	Campostoma anomalum	16	Intolerant
M43	SOUTHERN REDBELLY DACE	CYPRINIDAE	Phoxinus erythrogaster	1	Intolerant
M45	BLUNTNOSE MINNOW	CYPRINIDAE	Pimephales notatus	9	Tolerant
M50	CREEK CHUB	CYPRINIDAE	Semotilus atromaculatus	36	Tolerant
N09	WHITE SUCKER	CATOSTOMIDAE	Catostomus commersoni	4	Tolerant
J01	BROOK STICKLEBACK	GASTEROSTEIDAE	Culaea inconstans	5	Tolerant
X10	FANTAIL DARTER	PERCIDAE	Etheostoma flabellare	2	Intolerant

CLASSIFICATION

Based on this review of available chemical, physical, and biological data, the tributary to Indian Creek is properly classified as marginal (E). From the entrance of this tributary until a short distance below Indian Creek Road the classification of Indian Creek should remain as intermediate (D). A section of this was under consideration to be upgraded. But due to the Q_{710} of <0.01 cfs, flash flooding, unstable habitat (stream bed), and the HBI indicating "fairly poor water quality" along with only a few species being present indicative of a stable environment it was decided to leave the classification as intermediate. But the lower 1.3 miles of Indian Creek has less gradient, develops more pools and begins to meander more. Sport fish are present at least part of the year along with other species which probably use the stream for spawning during the spring. A tributary also adds additional flow to Indian Creek in the upper end of this section. This 1.3 mile stretch from the tributary to the mouth of Indian Creek should be upgraded to full fish and aquatic life (B).

Tributary to Indian
Creek

Above Dickeyville WWTP
outfall.



Tributary to Indian
Creek.

At Dickeyville WWTP
outfall.



Tributary to Indian
Creek.



Indian Creek

Upstream of private
drive.



Indian Creek Upstream
of Private Drive

Fish and
macroinvertebrate
sampling site.



Indian Creek

Downstream of Indian
Creek Road, note width
of flood channel vs. low
flow channel.

Indian Creek

Downstream of
Indian Creek Road.



APPENDIX I

Tributary to
Stream Indian Creek Reach Location Dickeyville Outfall to Indian Creek Reach Score/Rating 227/E
County Grant Date 10/12/88 Evaluator R. Schlessner Classification Marginal

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. 8	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 14	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 16	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 12	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. 10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
Bottom Substrate/Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 17	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. 22
Avg. Depth Riffles and Runs	Cold >1' 0	6" to 1' 6	3" to 6" 18	<3" 24
	Warm >1.5' 0	10" to 1.5' 6	6" to 10" 18	<6" 24
Avg. Depth of Pools	Cold >4' 0	3' to 4' 6	2' to 3' 18	<2' 24
	Warm >5' 0	4' to 5' 6	3' to 4' 18	<3' 24
Flow, at Rep. Low Flow	Cold >2 cfs 0	1-2 cfs 6	.5-1 cfs 18	<.5 cfs 24
	Warm >5 cfs 0	2-5 cfs 6	1-2 cfs 18	<1 cfs 24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of stream is offensive. 16
Column Totals:	<u>0</u>	<u>0</u>	<u>117</u>	<u>110</u>

Column Scores E 0 +G 0 +F 117 +P 110 = 227 = Score

<70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

Stream Indian Creek Reach Location Jct. of Trib. to 200' below Indian Creek Rd. Reach Score/Rating 216/DCounty Grant Date 10/12/88 Evaluator R. Schlessor Classification intermediate

Rating Item	Category			
	Excellent	Good	Fair	Poor
Watershed Erosion	No evidence of significant erosion. Stable forest or grass land. Little potential for future erosion. 8	Some erosion evident. No significant "raw" areas. Good land mgmt. practices in area. Low potential for significant erosion. 10	Moderate erosion evident. Erosion from heavy storm events obvious. Some "raw" areas. Potential for significant erosion. 14	Heavy erosion evident. Probable erosion from any run off. 16
Watershed Nonpoint Source	No evidence of significant source. Little potential for future problem. 8	Some potential sources (roads, urban area, farm fields). 10	Moderate sources (small wetlands, tile fields, urban area, intense agriculture). 12	Obvious sources (major wetland drainage, high use urban or industrial area, feed lots, impoundment). 16
Bank Erosion, Failure	No evidence of significant erosion or bank failure. Little potential for future problem. 4	Infrequent, small areas, mostly healed over. Some potential in extreme floods. 8	Moderate frequency and size. Some "raw" spots. Erosion potential during high flow. 14	Many eroded areas. "Raw" areas frequent along straight sections and bends. 20
Bank Vegetative Protection	90% plant density. Diverse trees, shrubs, grass. Plants healthy with apparently good root system. 6	70-90% density. Fewer plant species. A few barren or thin areas. Vegetation appears generally healthy. 9	50-70% density. Dominated by grass, sparse trees and shrubs. Plant types and conditions suggest poorer soil binding. 13	<50% density. Many raw areas. Thin grass, few if any trees and shrubs. 18
Lower Bank Channel Capacity	Ample for present peak flow plus some increase. Peak flow contained. W/D ratio <7. 8	Adequate. Overbank flows rare. W/D ratio 8-15. 10	Barely contains present peaks. Occasional overbank flow. W/D ratio 15-25. 14	Inadequate, overbank flow common. W/D ratio >25. 16
Lower Bank Deposition	Little or no enlargement of channel or point bars. 6	Some new increase in bar formation, mostly from coarse gravel. 9	Moderate deposition of new gravel and coarse sand on old and some new bars. 15	Heavy deposits of fine material, increased bar development. 18
Bottom Scouring and Deposition	Less than 5% of the bottom affected by scouring and deposition. 4	5-30% affected. Scour at constrictions and where grades steepen. Some deposition in pools. 8	30-50% affected. Deposits and scour at obstructions, constrictions and bends. Some filling of pools. 16	More than 50% of the bottom changing nearly year long. Pools almost absent due to deposition. 20
Bottom Substrate/Available Cover	Greater than 50% rubble, gravel or other stable habitat. 2	30-50% rubble, gravel or other stable habitat. Adequate habitat. 7	10-30% rubble, gravel or other stable habitat. Habitat availability less than desirable. 18	Less than 10% rubble gravel or other stable habitat. Lack of habitat is obvious. 22
Avg. Depth Riffles and Runs	Cold >1' 0 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 20
Avg. Depth of Pools	Cold >4' 0 Warm >5' 0	3' to 4' 6 4' to 5' 6	2' to 3' 18 3' to 4' 18	<2' 24 <3' 24
Flow, at Rep. Low Flow	Cold >2 cfs 0 Warm >5 cfs 0	1-2 cfs 6 2-5 cfs 6	.5-1 cfs 18 1-2 cfs 18	<.5 cfs 24 <1 cfs 24
Pool/Riffle, Run/Bend Ratio (distance between riffles ÷ stream width)	5-7. Variety of habitat. Deep riffles and pools. 4	7-15. Adequate depth in pools and riffles. Bends provide habitat. 8	15-25. Occasional riffle or bend. Bottom contours provide some habitat. 16	>25. Essentially a straight stream. Generally all flat water or shallow riffle. Poor habitat. 20
Aesthetics	Wilderness characteristics, outstanding natural beauty. Usually wooded or un-pastured corridor. 8	High natural beauty. Trees, historic site. Some development may be visible. 10	Common setting, not offensive. Developed but uncluttered area. 14	Stream does not enhance aesthetics. Condition of stream is offensive. 16
Column Totals:	0	7	67	142

Column Scores E 0 +G 7 +F 67 +P 142 = 216 = Score

<70 = Excellent, 71-129 = Good, 130-200 = Fair, >200 = Poor

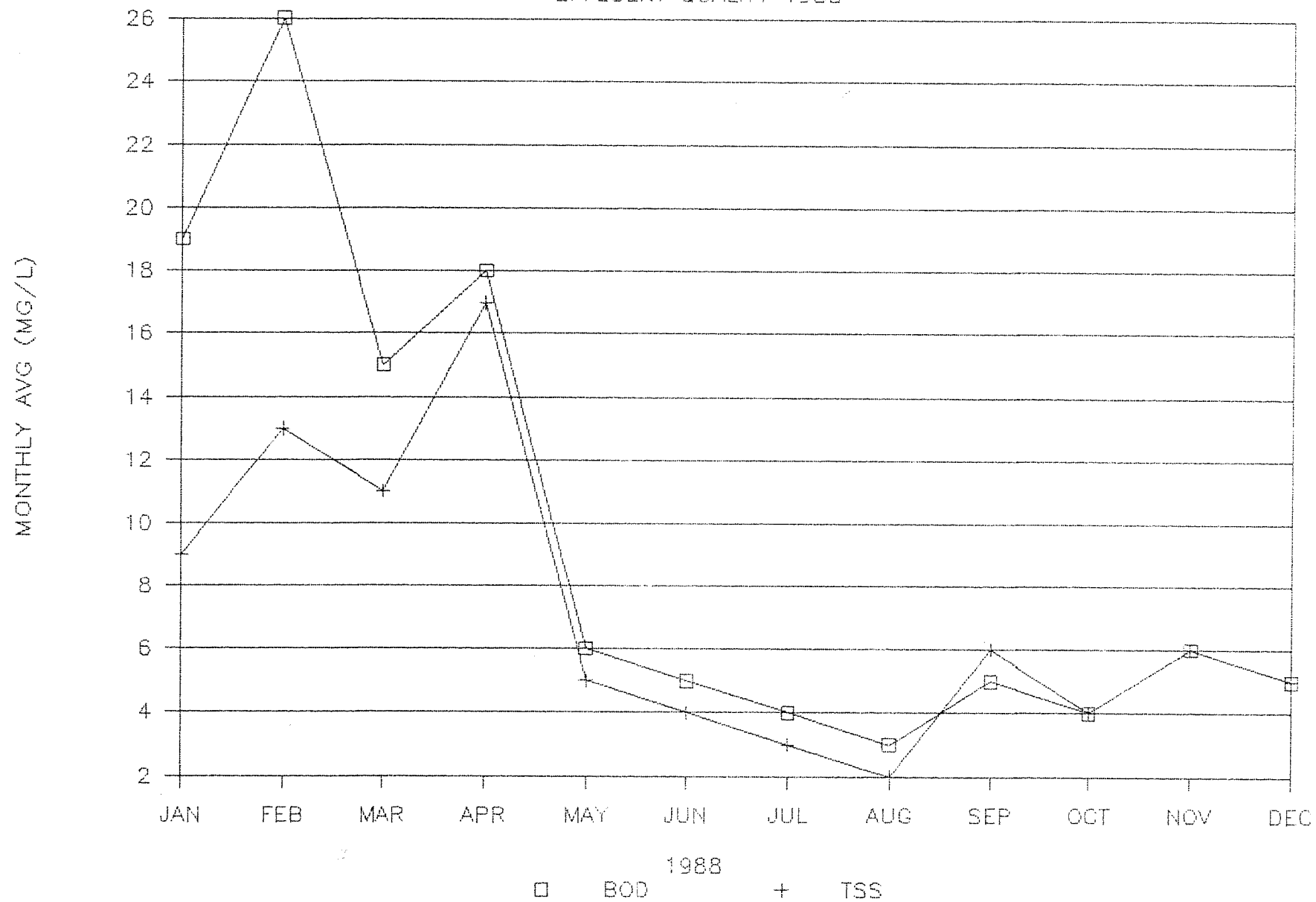
APPENDIX II

DICKYVILLE SEWAGE PLANT
EFFLUENT QUALITY 1988

	FLOW (MGD)	BOD (MG/L)	TSS (MG/L)
JAN	0.0620	19.00	9.00
FEB	0.0710	26.00	13.00
MAR	0.0630	15.00	11.00
APR	0.0634	18.00	17.00
MAY	0.0613	6.00	5.00
JUN	0.0600	5.00	4.00
JUL	0.0626	4.00	3.00
AUG	0.0627	3.00	2.00
SEP	0.0662	5.00	6.00
OCT	0.0603	4.00	4.00
NOV	0.0623	6.00	6.00
DEC	0.0551	5.00	5.00

DICKEYVILLE WWTP

EFFLUENT QUALITY 1988

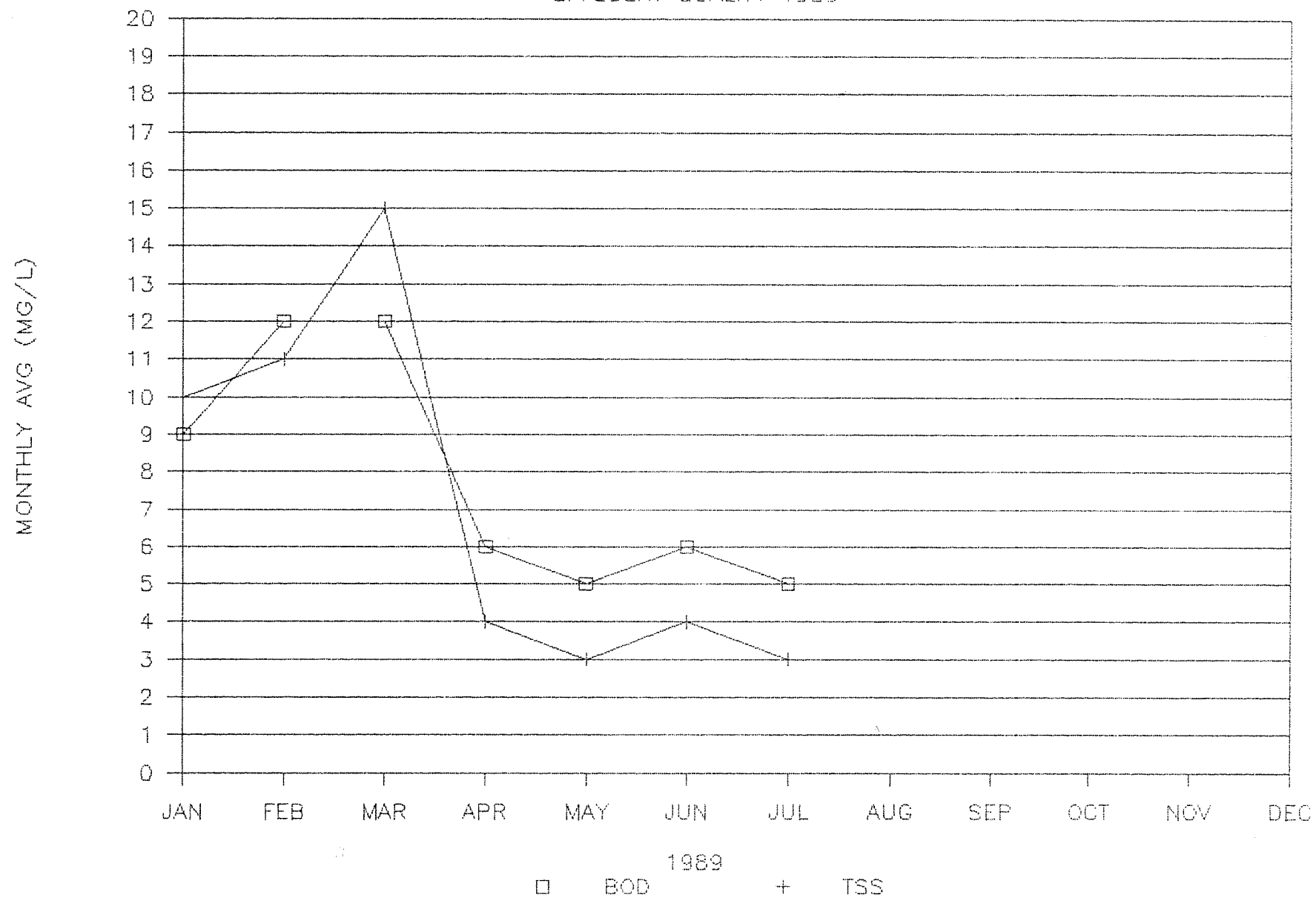


DICKEYVILLE SEWAGE PLANT
EFFLUENT 1989

	FLOW (MGD)	BOD (MG/L)	TSS (MG/L)
JAN	0.0659	9.00	10.00
FEB	0.0382	12.00	11.00
MAR	0.0517	12.00	15.00
APR	0.0529	6.00	4.00
MAY	0.0609	5.00	3.00
JUN	0.0624	6.00	4.00
JUL	0.0658	5.00	3.00
AUG	NA	NA	NA
SEP	NA	NA	NA
OCT	NA	NA	NA
NOV	NA	NA	NA
DEC	NA	NA	NA

DICKEYVILLE WWTP

EFFLUENT QUALITY 1989



APPENDIX III

DICKEYVILLE
GRANT COUNTY

July 22, 1975

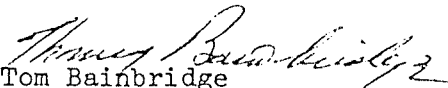
The Dickeyville waste water treatment plant discharges into a tributary of Indian Creek. The tributary is a natural channel that is defined about one-half mile upstream, but appears to have no base flow. For Indian Creek at a bridge 2.1 miles west of Dickeyville, the 7Q10 is less than .01 cfs. The watershed is steep; therefore, flash flooding occurs. Bank erosion is also a problem. These characteristics seem to hold true for the tributary as well as for Indian Creek. The land in this area is agricultural, but there are no fields directly bordering the tributary. Indian Creek is bordered largely by wooded areas.

RECOMMENDATIONS

The tributary to Indian Creek should be classified as noncontinuous agricultural use for its entire length. While the stream carries only effluent for most of the year, it does not appear to have been constructed primarily for the purpose of transporting treated effluent; thus the effluent ditch classification should not be used. Indian Creek should be classified as continuous intermediate fish and aquatic life.

The above recommendations represent a concurrence of opinion of the stream classification team who are as follows:

Dennis Iverson, District Engineer; Gene Van Dyck, Area Fish Manager;
Tom Bainbridge, Stream Classification Coordinator.


Tom Bainbridge
Stream Classification Coordinator

TB:lg

APPENDIX IV

8. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting until September 30, 1991, the permittee is authorized to discharge from outfall serial number 001.

Samples taken in compliance with the monitoring requirements specified below shall be taken at a representative location.

There shall be no discharge of visible or floating solids in other than trace amounts.

During any 30 consecutive days, the average effluent concentrations of BOD₅ and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively.

<u>EFFLUENT PARAMETERS</u>	<u>EFFLUENT LIMITATIONS</u>					<u>MONITORING REQUIREMENTS</u>	
	<u>Quantity-kg/day(lbs/day)</u>	<u>Other Limitations (Specify Units)</u>				<u>Sample</u>	<u>Sample</u>
	<u>Average¹</u>	<u>Maximum</u>	<u>Minimum</u>	<u>Average</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Type</u>
BOD ₅ (monthly)	12.8(28.4) ¹	-	-	20 mg/l	-	3x weekly	24-hr. Comp ²
BOD ₅ (weekly)	19.3(42.5) ¹	-	-	30 mg/l	-	3x weekly	24-hr. Comp ²
Suspended Solids (monthly)	12.8(28.4) ¹	-	-	20 mg/l	-	3x weekly	24-hr. Comp ²
Suspended Solids (weekly)	19.3(42.5) ¹	-	-	30 mg/l	-	3x weekly	24-hr. Comp ²
pH	-	-	6.0 s.u.	-	9.0 s.u.	Daily	Grab
Residual Chlorine (daily)	-	-	-	-	0.5 mg/l	Daily	Grab ³
Fecal Coliform (monthly)	-	-	-	#/100 ml	-	1x Weekly	Grab ³
Dissolved Oxygen (daily)	-	-	4.0 mg/l	-	-	3x Weekly	Grab

¹Based on a design flow of .17 MGD.

²Samples shall be composited on a flow proportional basis.

³At such time as the need for disinfection is determined in the River Basin Plan, this permit may be modified to incorporate either the final limitations or interim limitations and a compliance schedule to achieve the final limitations. In the interim, disinfection shall be provided continuously.

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APPENDIX V

Chapter NR 104

INTRASTATE WATERS — USES AND
DESIGNATED STANDARDS

NR 104.01	General (p. 33)	NR 104.07	Variances and additions applicable in the Lake Michigan district (p. 44)
NR 104.02	Surface water classifications and effluent limitations (p. 34)	NR 104.08	Variances and additions applicable in the north central district (p. 48)
NR 104.03	Classification of surface waters and antidegradation (p. 37)	NR 104.09	Variances and additions applicable in the west central district (p. 49)
NR 104.04	Provision for changes (p. 38)	NR 104.10	Variances and additions applicable in the northwest district (p. 52)
NR 104.05	Variances and additions applicable in the southern district (p. 38)		
NR 104.06	Variances and additions applicable in the southeast district (p. 41)		

Note: Chapter NR 104 as it existed on September 30, 1976 was repealed and a new chapter NR 104 was created effective October 1, 1976.

NR 104.01 General. (1) "It is . . . the goal of the state of Wisconsin that, wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water be achieved by 1983. . . " s. 147.01(1)(b), Stats. The long-range goal of Wisconsin water quality standards is, therefore, to permit the use of water resources for all lawful purposes. Surface waters which because of natural conditions are not conducive to the establishment and support of the complete hierarchy of aquatic organisms shall not be degraded below present levels, but shall be upgraded as necessary to support assigned uses. Most surface waters within the state of Wisconsin already meet or exceed the goals specified above. However, certain waters of the state may not meet these goals for the following reasons:

- (a) The presence of in-place pollutants,
- (b) Low natural streamflow,
- (c) Natural background conditions, and
- (d) Irretrievable cultural alterations.

(1m) Where it is determined that one or more of these factors may interfere with the attainment of the statutory objectives, a variance from the criteria necessary to achieve those objectives is provided.

(2) Surface waters within the boundaries of the state shall meet the standards for fish and aquatic life and recreational use with the variances and additions listed below in ss. NR 104.05 to 104.10. A system is provided within which small streams and other surface waters which cannot support high quality uses are granted a variance from the high quality criteria.

(3) Effluent limitations specified in this chapter shall be achieved by industrial, private and municipal dischargers by July 1, 1983 unless an earlier date is otherwise provided in a permit issued under s. 147.02, Stats. Municipal dischargers eligible for state or federal grant-in-aid

shall achieve the specified effluent limitations upon completion of construction or modification of facilities approved by the department of natural resources subsequent to adoption of this chapter unless otherwise provided in a permit issued under s. 147.02, Stats.

History: Cr. Register, September, 1976, No. 249, eff. 10-1-76; am. (1), Register, December, 1977, No. 264, eff. 1-1-78.

NR 104.02 Surface water classifications and effluent limitations. (1) HYDROLOGIC CLASSIFICATION. "Surface waters" as defined in s. NR 102.01(7), may be classified according to their hydraulic or hydrologic characteristics. For purposes of this chapter, surface waters will be classified by the department into one of the following categories:

(a) *Lakes or flowages*. This classification includes bodies of water whose current is more or less stagnant or which lacks a unidirectional current.

(b) *Diffused surface waters*. This classification includes any water from rains, intermittent springs or melting snow which flows on the land surface, through ravines, etc., which are usually dry except in times of runoff. This category does not include waters at the land surface in the vicinity of agricultural or wastewater irrigation disposal systems.

(c) *Wetlands*. This classification includes areas where water is at, near, or above the land surface long enough to be capable of supporting aquatic or hydrophytic vegetation and which have soils indicative of wet conditions.

(d) *Wastewater effluent channels*. This classification includes discharge conveyances constructed primarily for the purpose of transporting wastes from a facility to a point of discharge. Drainage ditches (including those established under ch. 88, Stats.) constructed primarily for the purposes of relieving excess waters on agricultural lands shall not be construed as effluent channels. Modifications made to natural watercourses receiving wastewater effluents for the purpose of increasing or enhancing the natural flow characteristics of the stream shall not be classified as effluent channels.

(e) *Noncontinuous streams*. This classification includes watercourses which have a defined stream channel, but have a natural 7-day $Q_{\cong}$ flow of less than 0.1 cfs and do not exhibit characteristics of being perpetually wet without wastewater discharges.

(f) *Continuous streams*. This classification includes watercourses which have a natural 7-day $Q_{\cong}$ flow of greater than 0.1 cfs or which exhibit characteristics of a perpetually wet environment, are generally capable of supporting a diverse aquatic biota and flow in a defined stream channel.

Note: The application of this classification system is not dependent on the navigability properties of the watercourse, but is dependent upon the quantity-quality relationships of the surface water.

(2) WATER QUALITY CLASSIFICATION. (a) Whenever the goals as specified in s. 147.01(1)(b), Stats., cannot be attained because of conditions enumerated in s. NR 104.01(1), a variance may be provided. Variances from a specific water quality criteria may be given in s. NR 104.05 et. seq. or a variance under one of the categories provided in this chapter may be specified.

Register, October, 1985, No. 358

(b) Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development, or other activities shall be controlled so that waters regardless of their hydrologic and water quality classifications meet the general aesthetic and acute toxicity conditions in s. NR 102.02(1).

(3) VARIANCE CATEGORIES. (a) Surface waters not supporting a balanced aquatic community (intermediate aquatic life):

1. Applicability. This category of variance may be applied to either the continuous or noncontinuous stream hydrologic classification.

2. Surface water criteria. The following water quality criteria shall be met in all surface waters included in this variance category:

a. Dissolved oxygen shall not be less than 3 mg/l.

b. Ammonia nitrogen (as N) at all points in the receiving water shall not be greater than 3 mg/l during warm temperature conditions nor greater than 6 mg/l during cold temperatures to minimize the zone of toxicity and to reduce dissolved oxygen depletion caused by oxidation of the ammonia.

c. The pH shall be within the range of 6.0 to 9.0.

d. Other substances may not exceed concentrations determined in accordance with s. NR 102.02(1).

3. Effluent criteria. a. The effluent limitations determined necessary to meet the surface water criteria listed above are enumerated in table 1.

Parameter	Monthly Average (mg/l)	Daily Maximum (mg/ l)	Weekly Average (mg/l)	Other (mg/l)
BOD ₅	15	30	-	-
Total Suspended Solids	20	30	-	-
NH ₃ -N (May-October)	-	-	3	-
NH ₃ -N (November-April)	-	-	6	-
Dissolved Oxygen	-	-	-	4 (minimum)

b. Unless otherwise specified in table 1 above, effluent limitations for sewage treatment works shall be as adopted in ch. NR 210.

c. In addition to the effluent limitations enumerated in table 1 above, effluent limitations for these and any other substance necessary to protect assigned uses shall be met.

(b) Marginal surface waters: 1. Applicability. This variance category may be applied to the continuous or noncontinuous stream hydrologic classification, except that it shall be applied to all surface waters classified as effluent channel, wetland or diffuse surface water.

2. Surface water criteria. The following surface water quality criteria shall be met in all surface waters included in this variance category:

a. Dissolved oxygen shall not be less than 1 mg/l.

b. The pH shall be within the range of 6.0 to 9.0.

c. Other substances may not exceed concentrations determined in accordance with s. NR 102.02(1).

3. Effluent criteria. a. The effluent limitations determined necessary to meet the surface water criteria listed above are enumerated in table 2.

Parameter	Table 2		
	Monthly Average (mg/1)	Weekly Average (mg/1)	Other (mg/1)
BOD ₅	20	30	-
Total Suspended Solids	20	30	-
Dissolved Oxygen	-	-	4 (minimum)

b. Unless otherwise specified in table 2 above, effluent limitations for sewage treatment works shall be as adopted in ch. NR 210.

c. In addition to the effluent limitations enumerated in table 2 above, effluent limitations for these and any other substance necessary to protect assigned uses shall be met.

(4) OTHER CLASSIFICATIONS AND EFFLUENT CRITERIA. (a) *Surface waters significant to the environmental integrity of the state or region.* Under all hydrologic categories, the department reserves the right to require other effluent limitations, including allocation of wasteloads for organic material, toxicants and chlorine residuals if it is determined that the specified surface water is important to the overall environmental integrity of the area. In waters identified as trout streams, located in scientific areas or wild and scenic areas, providing endangered species habitat or of high recreational potential, effluent criteria will be evaluated on a case-by-case basis.

(b) *Surface waters classified for fish and aquatic life.* 1. Streams. Where flowing streams or rivers are specified to achieve fish and aquatic life criteria, wasteload allocation for organic material, toxicants and chlorine residuals shall determine effluent criteria necessary to achieve that standard.

2. Lakes and flowages. Effluent characteristics for discharges to lakes or flowages shall be based upon an evaluation of water quality necessary to protect fish and aquatic life taking into account mixing zone and nutrient removal criteria.

3. Minimum effluent criteria. If it can be reasonably demonstrated that the quality of the surface water is independent of a wastewater discharge, effluent limitations established under ss. 147.04 and 147.06, Stats., shall apply.

(c) *Wastewater treatment lagoons.* Effluents from fill-and-draw wastewater treatment lagoons or domestic waste stabilization ponds discharging to waters receiving a variance in this chapter may be permitted to vary from the limitations specified in table 1 or 2 provided the following conditions are met:

1. The discharge occurs only during the spring and fall of the year when the flow in the receiving water is normally high, and the temperature is low. The rate of discharge shall not exceed that specified in a permit under s. 147.02, Stats., or where no rate is indicated, the allowable discharge quantities shall be determined by the department based upon current evaluation of the receiving water.

2. In lieu of the previous conditions, the discharge from a fill-and-draw lagoon may occur at any time provided the rate does not exceed the assimilative capacity of the receiving water as specified in a permit under s. 147.02, Stats.

3. The dissolved oxygen in the effluent is maintained at a level greater than or equal to 4 mg/l, and the permitted rate of discharge shall be such that the dissolved oxygen and ammonia nitrogen criteria necessary to sustain fish and aquatic life are maintained in the stream during the period of discharge.

4. The effluent limitations do not exceed those established under ss. 147.04 and 147.06, Stats.

(5) CHANGES IN CLASSIFICATION. Surface waters which exhibit changing hydrologic and quality characteristics shall be classified accordingly. Effluent criteria for upstream discharges shall be based upon the most critical downstream classification and shall be specified by the department either on the basis of justified inference or by the application of a wasteload allocation analysis. Any subsequent changes in a stream's morphology or potential may necessitate the reevaluation of the classification.

History: Cr. Register, September, 1976, No. 249, eff. 10-1-76; am. Tables 1 and 2, (2), (3) (a) 2a and d, (3) (b) 2a and c, (4) (c), Register, December, 1977, No. 264, eff. 1-1-78; am. (3) (a) 2a, Register, June, 1978, No. 270, eff. 7-1-78; am. (1) (c), Register, June, 1984, No. 342, eff. 2-1-84; r. (3) (a) 2. b. to d., (b) 2. b. and c., renum. (3) (a) 2. e. to g. and (3) (b) 2. d. and e. to be (3) (a) 2. b. to d. and (3) (b) 2. b. and c. and am (3) (a) 2. g. and (3) (b) 2. c., am. (3) (a) 3. a. and (3) (b) 3. a., Register, October, 1986, No. 370, eff. 11-1-86.

NR 104.03 Classification of surface waters and antidegradation. In no case shall the effluent criteria specified herein cause degradation of surface water quality below present levels. Surface waters which, be reason of their hydrologic classification, are permitted to receive a new effluent of a quality specified in NR 104.02 shall not receive such effluent unless it has been affirmatively demonstrated to the department that such degradation is necessary to protect the public health or to maintain or restore the environmental integrity of a higher value resource. In no case shall a new effluent interfere with or become injurious to any assigned uses made of or presently possible in any surface water.

History: Cr. Register, September, 1976, No. 249, eff. 10-1-76; am. Register, December, 1977, No. 264, eff. 1-1-78.

NR 104.04 Provision for changes. The surface waters specified in this chapter are not intended to be an exclusive listing nor do the specified effluent criteria purport to meet the 1983 water quality goals set forth in ch. 147, Stats. Additions to or deletions from these listings may be made based upon the accumulation of information necessary to make such determination and in accordance with the requirements of ch. 227, Stats.

History: Cr. Register, September, 1976, No. 249, eff. 10-1-76.

NR 104.05 Variances and additions applicable in the southern district. Subject to the provision of NR 104.04, intrastate surface waters in the southern district counties of Columbia, Dane, Dodge, Grant, Green, Iowa, Jefferson, Lafayette, Richland, Rock and Sauk shall meet the criteria for fish and aquatic life and recreational use with exceptions and additions as follows:

Register, October, 1986, No. 370

(1) ADDITION. The public water supply standard shall be met on the Wisconsin river in section 8, township 10 north, range 7 east.

(2) VARIANCE. Surface waters in the southern district subject to a variance under NR 104.02(3) are listed in table 3.

TABLE 3
SOUTHERN DISTRICT

Surface Water (Facility Affected)	Reach Description	Hydrologic Classification	Applicable Criteria (1)	Effluent Limitations (2) Effluent limitations to be determined
1. Goose Lake Tributary (Arlington)	Tributary upstream from Goose Lake	Noncontinuous	II	B
2. Tributary - East Branch Pecatonica River (Barneveld)	From the Barneveld STP downstream to the East Branch Pecatonica River	Noncontinuous	II	B
3. Williams Creek (Blue Mounds)	From the Blue Mounds STP downstream to the east line of Sec. 14, T6N, R5E	Noncontinuous	I	A
4. Sanders Creek (Boscobel)	From the Boscobel STP downstream to the Wisconsin River	Continuous	I	A
5. Allen Creek (Brooklyn)	Upstream from Butts Corner Road	Continuous	I	A
6. Kummel Creek (Brownsville)	From Brownsville STP downstream to CTH "HH"	Noncontinuous	I	A
7. Spring Brook and Tributary (Clinton)	Tributary from the Clinton STP to Spring Brook	Effluent ditch	II	B
8. Tributary - Dead Creek (Clyman)	Spring Brook in Clinton Township	Continuous	II	NA
9. West Branch Pecatonica River (Cobb)	Tributary from Clyman STP downstream to Dead Creek	Noncontinuous	II	B
	From the Cobb STP downstream to confluence with an unnamed tributary NE¼, NW¼, Sec. 2, T5N, R1E.	Continuous	I	A
10. Door Creek (Cottage Grove)	Door Creek upstream from STH 12 & 18	Noncontinuous	I	A
	From STH 12 & 18 downstream to Lake Kegonsa	Continuous	I	NA
11. Coon Branch (Cuba City)	Upstream from westerly tributary approximately 1 mile above STH "11"	Noncontinuous	II	B
	Downstream from above tributary to confluence with Galena River	Continuous	I	NA
12. Mud Creek and Tributary (Deerfield)	Tributary from Deerfield STP to confluence with Mud Creek	Effluent ditch	II	B
	Mud Creek from above tributary downstream to confluence with Koshkonong Creek	Continuous	I	

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13. Indian Creek and Tributary (Dickeyville)	Tributary from Dickeyville STP to confluence with Indian Creek Indian Creek from above tributary downstream to confluence with Platte River	Noncontinuous Continuous	II I	NA A
14. Dodge Branch (Dodgeville)	Upstream from a point approximately 3,500 feet downstream from STH "191"	Noncontinuous	I	A
15. Tributary - North Branch Crawfish River (Fall River)	Tributary from the Fall River STP downstream to the North Branch Crawfish River	Noncontinuous	II	Effluent limitations to be determined
16. Gregory Branch (Fennimore)	Upstream from STH "61"	Continuous	I	A
17. Tributary - Rock River (Hidden Meadows Mobile Home Park)	Tributary from the Hidden Meadows Mobile Park STP discharge downstream to the Rock River	Noncontinuous	II	B
18. Big Spring Branch (Highland)	Upstream from the North line of Sec. 19, T7N, R1E	Noncontinuous	I	A
19. Pedler Creek (Iowa Co. Nursing Home)	From the Iowa Co. Nursing Home STP downstream to the confluence with an unnamed tributary, SE¼, SE¼, Sec. 34, T6N, R2E	Noncontinuous	I	A
20. Tributary - Wildcat Creek (Iron Ridge)	From the Iron Ridge STP downstream to Wildcat Creek	Noncontinuous	II	B
21. Tributary & Rock River Tributary (Ixonian San. Dist.)	From the Ixonian San. Dist. STP downstream to the juncture with the Rock River Tributary Rock River Tributary from above tributary to confluence with Rock River	Noncontinuous Continuous	II II	B NA
22. Tributary - Menominee River (Jamestown San. Dist. #2)	From Jamestown San. Dist. #2 STP to the Menominee River	Diffused surface water	II	B
23. Dead Creek (Juneau)	Upstream from CTH "M" From CHT "M" to St. Helena Rd.	Effluent ditch Continuous	II I	B NA
24. Sinnipee Creek (Kieler San. Dist. #1)	From Kieler lagoon outfall to Bluff Road	Continuous	I	A
25. Rock Creek (Lake Mills)	From the Lake Mills STP downstream to CTH "V" From CTH "V" to Harper's Mill Pond	Noncontinuous Continuous	I I	A NA
26. Tributary - Pigeon Creek (Lancaster)	Tributary from Lancaster STP downstream to south line of section 10 Tributary from above point downstream to confluence with Pigeon Creek	Continuous Continuous	II I	Effluent limitations to be determined
27. Tributary - Baker Creek (Lebanon San. Dist.)	From Lebanon STP downstream to Baker Creek	Noncontinuous	II	B
28. Little Platte River (Livingston)	From Livingston STP downstream to New California Road	Noncontinuous	I	A
29. Tributary-East Branch Rock River (Lomira)	Tributary upstream from confluence with East Branch Rock River.	Noncontinuous	I	A
30. (Madison Metro Sewerage Commission)	From the STP outfall aerator to the Oregon Branch	Effluent ditch	II	Effluent limitations to be determined

31. Brewery (Furnance) Creek (Mineral Point)	Brewery Creek upstream from confluence with Mineral Point Branch	Continuous	II	B (Note: the above limitation shall remain in effect until significant nonpoint source problems can be corrected)
32. Tributary - Blue River (Montfort)	From the Montfort STP downstream to the Blue River	Continuous	I	A
33. Little Grant River (Mount Hope)	From the Mt. Hope STP downstream to the west boundary of Sec. 10, T5N, R4W	Noncontinuous	I	A
34. West Branch Sugar River (Mt. Horeb)	From Mt. Horeb STP downstream to CTH "JG".	Continuous	I	A
35. Tributary - Austin Branch (Orchard Manor)	Drainage from Orchard Manor outfall to Austin Branch	Diffused surface waters	II	Effluent limitations to be determined
36. Oregon Branch - Badfish Creek (Oregon)	From the Oregon outfall downstream to juncture with the Madison Met effluent ditch	Noncontinuous	II	Effluent limitations to be determined
	From this point downstream to CTH "A"	Continuous	I	
37. Swan Creek and Tributary (Orfordville)	Tributary from Orfordville STP outfall to Swan Creek.	Effluent ditch	II	NA
	Swan Creek from confluence with above tributary to Dicky Road.	Noncontinuous	I	A
38. Tributary - Blake Fork (Patch Grove)	Tributary from the Patch Grove STP downstream to Blake Fork	Noncontinuous	I	A
39. Tributary - Honey Creek (Plain)	From the Plain STP downstream to Honey Creek	Continuous	I	Effluent limitations to be determined
40. Randolph Branch - Tributary	From the Randolph STP downstream to Beaver Creek Tributary	Noncontinuous	II	Effluent limitations to be determined
Beaver Creek (Randolph)	Tributary to Beaver Creek upstream from Beaver Creek	Noncontinuous	I	A
41. Tributary-Beaver Dam River (Reeseville)	Tributary from Reeseville STP to confluence with Beaver Dam River	Noncontinuous	I	
42. Conley - Smith Creek (Ridgeway)	From the Ridgeway STP downstream to the south boundary of Sec. 14, T6N, R4E	Noncontinuous	I	Effluent limitations to be determined
43. Tributary - Rocky Run Creek (Rio)	From the Rio STP downstream to Rocky Run Creek	Noncontinuous	II	B
44. Tributary - Narrows Creek (Sauk Co. Health Care Center)	From the Sauk County Health Care Center STP downstream to Narrows Creek	Noncontinuous	I	A
45. Duck Creek and Tributary (Sullivan)	Tributary from the Sullivan STP to Duck Creek	Effluent channel	II	Effluent limitations to be determined
	Duck Creek from the effluent ditch downstream juncture with northerly drainage ditch in Sec. 5, T6N, R16E	Noncontinuous	I	
46. Koshkonong Creek (Sun Prairie)	Koshkonong Creek upstream from first bridge above Sun Prairie STP	Noncontinuous	II	Effluent limitations to be determined
	Koshkonong Creek from above location to CTH "T".	Continuous	II	A
47. Badger Mill Creek (Verona)	Badger Mill Creek from road at Verona STP downstream to STH "69".	Continuous	I	

48. Tributary - Mur- Tributary from Oakwood State Camp Noncontinuous II B
 phy Creek (Wis- STP downstream to Murphy Creek
 consin
 Department of
 Health & Social
 Services - Oak-
 wood State
 Camp)

- (1) Criteria I requires the maintenance of surface water criteria specified in NR 104.02(3)(a)2.
 Criteria II requires the maintenance of surface water criteria specified in NR 104.02(3)(b)2.
 (2) Effluent limitation A requires those limits specified in NR 104.02(3)(a)3.
 Effluent limitation B requires those limits specified in NR 104.02(3)(b)3.
 NA—Not applicable

History: Cr. Register, September, 1976, No. 249, eff. 10-1-76; am. table 3, r. (3), Register, December, 1977, No. 264, eff. 1-1-78.

NR 104.06 Variances and additions applicable in the southeast district. Subject to the provisions of NR 104.04, intrastate surface waters in the southeast district counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington and Waukesha shall meet the criteria for fish and aquatic life and recreational use with exceptions and additions as follows.

(1) VARIANCE. Surface waters in the southeast district subject to a variance under NR 104.02(3) are listed in table 4.

(2) OTHER VARIANCES. (a) The following surface waters in the southeast district shall meet the standards for fish and aquatic life except that the dissolved oxygen shall not be lowered to less than 2 mg/l at any time, nor shall the membrane filter fecal coliform count exceed 1,000 per 100 ml as a monthly geometric mean based on not less than 5 samples per month nor exceed 2,000 per 100 ml in more than 10% of all samples during any month:

1. Underwood creek in Milwaukee and Waukesha counties below Jeanne boulevard.
2. Barnes creek in Kenosha county.
3. Pike creek, a tributary of Pike river, in Kenosha county.
4. Pike river in Racine county.
5. Indian creek in Milwaukee county.
6. Honey creek in Milwaukee county.
7. Menomonee river in Milwaukee county below the confluence with Honey creek.
8. Kinnickinnic river in Milwaukee county.
9. Lincoln creek in Milwaukee county.

(b) The following surface waters in the southeast district shall meet the standards for fish and aquatic life except that the dissolved oxygen shall not be lowered to less than 2 mg/l at any time, nor shall the membrane filter fecal coliform count exceed 1,000 per 100 ml as a monthly geometric mean based on not less than 5 samples per month nor exceed 89DF at any time at the edge of the mixing zones established by the department under s. NR 102.03 (4):

1979

DICKEYVILLE

Indian Creek

Indian Creek has a Q_{7-10} of less than .01 cfs at a bridge crossing 2.1 miles west of Dickeyville. This location is approximately three-quarters of a mile from Indian Creek's mouth.

Besides exhibiting low flow Indian Creek has several other factors limiting its aquatic biota. It has a very high gradient averaging 150' to 200' per mile. Its substrate consists of bedrock and a combination of boulders and rubble. It averages 30' to 40' in width and pools are limited in number. Because of its extreme width, during normal flow stream depth is very shallow. Due to the high gradient of the stream it is subject to flashflooding which has caused severe bank erosion. Instream cover is nearly absent and aquatic vegetation is limited to mostly filamentous algae.

Because of flash flooding and low flows establishment of a good biotic community is restricted.

A biological sample taken on 2/9/79, two-thirds of a mile from Indian Creek's mouth showed a low diversity of aquatic organisms. Macroinvertebrates consisted of mostly isopods along with a few polychaetidae larvae.

Fish management hasn't shocked Indian Creek but visual observations of only forage fish have been made.

The existing classification should remain unchanged.

DICKEYVILLE
GRANT COUNTY

July 22, 1975

The Dickeyville waste water treatment plant discharges into a tributary of Indian Creek. The tributary is a natural channel that is defined about one-half mile upstream, but appears to have no base flow. For Indian Creek at a bridge 2.1 miles west of Dickeyville, the 7Q10 is less than .01 cfs. The watershed is steep; therefore, flash flooding occurs. Bank erosion is also a problem. These characteristics seem to hold true for the tributary as well as for Indian Creek. The land in this area is agricultural, but there are no fields directly bordering the tributary. Indian Creek is bordered largely by wooded areas.

RECOMMENDATIONS

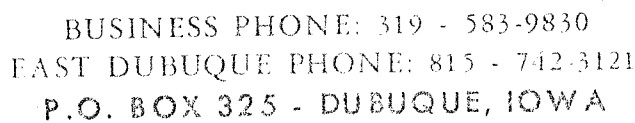
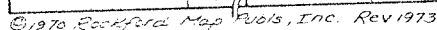
The tributary to Indian Creek should be classified as noncontinuous agricultural use for its entire length. While the stream carries only effluent for most of the year, it does not appear to have been constructed primarily for the purpose of transporting treated effluent; thus the effluent ditch classification should not be used. Indian Creek should be classified as continuous intermediate fish and aquatic life.

The above recommendations represent a concurrence of opinion of the stream classification team who are as follows:

Dennis Iverson, District Engineer; Gene Van Dyck, Area Fish Manager;
Tom Bainbridge, Stream Classification Coordinator.


Tom Bainbridge
Stream Classification Coordinator

TB:lg





↑ DICKEYVILLE - Below STP.



↑ DICKEYVILLE - Below STP.

The Dickeyville wastewater treatment plant discharged into a tributary of Indian Creek. Although the stream appears to have no base flow, it is not, by definition, an effluent ditch. The substrate of the tributary is sand and sandy loam.

Indian Creek is a spring-fed stream that begins 1 mile west of Dickeyville and flows west to empty into the lower limits of the Platte River. Approximately 0.75 mile from the mouth of Indian Creek, the stream has a $Q_{7,10}$ less than 0.01 cfs.

Besides low flows, Indian Creek has several other factors limiting its aquatic biota. The stream has a very high gradient, averaging 150 to 200 feet per mile. Its substrate consists of bedrock and a combination of rocks, boulders and rubble. The stream's width ranges from 30 to 40 feet and pools are limited in number. Because of its extreme width, stream depth is very shallow. Instream cover is nearly absent and aquatic vegetation is limited to mostly filamentous algae.

The wastewater is steep; therefore flashflooding is a common occurrence. Bank erosion is heavy throughout the stream. The lower half of the stream is wide and sluggish due to water backing up from the Platte River.

Stream: Indian Creek and Tributary to Indian Creek

Discharger: Dickeyville STP

County: Grant

Classification Recommendation

1. The tributary to Indian Creek should be classified as noncontinuous, marginal fish and aquatic life.
2. Indian Creek should be classified as continuous intermediate fish and aquatic life.

CHEMICAL DATA FOR INDIAN CREEK

<u>Site</u> <u>Description and</u> <u>Date</u>	<u>BOD</u> (mg/l)	<u>Temp.</u> (°C)	<u>pH</u> (s.u.)	<u>D.O.</u> (mg/l)	<u>Fecal</u> <u>Coliform</u> MFCC 100 ml
Town Road Bridge (River Mile 1.0)					
8-26-64	2.4	22	8.4	9.1	2,000
10-16-64	2.4	11	7.3	6.5	500
River Mile 3.0					
7-15-70	7.0	22	8.0	7.0	1,300
8-03-70	15.0	23	8.4	7.1	2,200
10-20-70	18.0	14	8.0	7.8	670
4-15-75	185	14	-	1.6	62,000*
8-06-75	11	24	-	8.2	2,800*
12-29-75	166	5.5	-	8.2	120,000*

*Value measured in M-FCAGAR/100 ml

BIOLOGICAL DATA FOR INDIAN CREEK

Organisms / Sq. Ft.

<u>Site</u> <u>Description and</u> <u>Date</u>	<u>Bottom</u>	<u>Current</u>	<u>Intolerant</u> <u>Spp.</u> <u>No.</u>		<u>Tolerant</u> <u>Spp.</u> <u>No.</u>		<u>Very Tolerant</u> <u>Spp.</u> <u>No.</u>	
River Mile 1.0								
8-26-64	Rock & Gravel	Riffle	5	114	5	142	1	38
8-26-64 (Qualitative)	Rock	Riffle	2	-	3	-	0	-
River Mile 3.0								
12-17-70	Rock	Fast- Riffle	-	-	1	8	1	50
Tributary to Indian Creek (130 feet below Dickeyville outfall)	Sand & Sandy Loam	Slow Moderate	-	-	-	-	2*	10**

*Organisms not necessarily identified to species level.

**Does not represent population density.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
DUBUQUE NORTH QUADRANGLE
IOWA-WISCONSIN-ILLINOIS
7.5 MINUTE SERIES (TOPOGRAPHIC)

STATE GEOLOGIST

