

Region SCR County Grant Report Date 7/1989 Classification LFF  
 Water Body: Gregory Branch  
 Discharger: Fennimore 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 habitat
- 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)
- Chemical Data (temp, D.O., etc.)
- Physical Data (flow, depth, etc.)
- Habitat Description
- Site Description/Map
- Other: Photos/slides

**Historical Reports in file:**

- 7/1989 - Roger Schlessler
- 7/22/75 - Tom Bainbridge

**Additional Comments/How to improve report:**

-excellent report w/ good justification for LFF.

GREGORY BRANCH

AT FENNIMORE

TRIENNIAL STANDARDS REVIEW

FENNIMORE WWTP

JULY, 1989

ROGER SCHLESSER, SOUTHERN DISTRICT

BUREAU OF WATER RESOURCES MANAGEMENT

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

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## SUMMARY

The Gregory Branch below the Fennimore WWTP was originally classified as intermediate fish and aquatic life (D) due to low natural stream flow and lack of habitat. The intermediate section extends to the first bridge crossing on STH "61". From this point extending downstream and for the remainder of the Gregory Branch, the classification is continuous fish and aquatic life. This review indicates the existing classification is correct and should remain the same.

## INTRODUCTION

This paper presents the results of an evaluation of the stream classification for Gregory Branch, which is the receiving stream for the Fennimore Municipal WWTP. 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 in-place pollutants
- (b) Low natural stream flow
- (c) Natural background conditions, and
- (d) Irretrievable cultural alterations

GENERAL DESCRIPTION

Gregory Branch is a spring fed stream with its watershed originating within the city limits of Fennimore and flowing southwesterly to enter the mid-section of Roger's Branch. As with any city; runoff to Gregory Branch may contain salt, sand, heavy metals, fertilizers, pesticides, etc. Runoff from city streets and residences enter Gregory Branch via storm sewers and by direct drainage.

The reach included in this evaluation is a 1.7 mile stretch which extends from approximately 0.2 mile above the outfall downstream to STH "61". Land use in the study area is agriculture. Runoff from several barnyards drain into the stream and most of the remaining stream corridor is heavily pastured.

The stream in the vicinity of the wastewater plant has low perennial flow with a USGS computed  $Q_{72}$  of 0.02 cfs and a  $Q_{710}$  of 0.01 cfs. But the stream bed above the outfall on several occasions was totally dry. Consequently, the majority of the flow directly below the WWTP is wastewater. The USGS flows were taken at the old WWTP. The new WWTP was constructed approximately 1 mile downstream of the old plant. Table 1 contains the actual stream flows in the Gregory Branch taken from the publication "Low-Flow Characteristics of Wisconsin Streams at Sewage Treatment Plants and Industrial Plants".

Table 1: Low-Flow Characteristics, Gregory Branch

<u>Drainage Area</u> <u>(mi<sup>2</sup>)</u>	<u>Date</u>	<u>Discharge</u> <u>(ft<sup>3</sup>/S)</u>
0.42	June 21, 1972	0.14
	Sept. 1, 1972	0.28
	Aug. 3, 1973	0.24
	Oct. 17, 1975	0.12
	July 27, 1976	0.05
	Oct. 26, 1976	0.05

STREAM HABITAT

The intermediate section of the Gregory Branch is best characterized as having low flow and a lack of pools; mostly flat water and poor habitat. Bank erosion is a problem along some sections due to heavy pasturing and the proximity of barnyards to the stream channel. The substrate is one of rubble-gravel with heavy deposits of silt-sediment in some areas. A "stream system habitat rating form" is contained in Appendix I.

WATER QUALITY

The chemical and bacteriological data for the Gregory Branch is available from a post-operational survey conducted September 21-22, 1982 (Table II). The survey was conducted at this time of the year because this is normally a critical time in streams receiving organic and inorganic loads. Stream flow is generally low, along with high stream water temperatures.

The section of stream surveyed was from upstream of the outfall (on a tributary which enters at the outfall) downstream to the first Highway "61" bridge (Map #1). Effluent flow was twice the upstream flow which provided ideal conditions to determine the water quality impacts by the WWTP.

During the chemical survey Gregory Branch had no flow above the outfall. The upstream site used was a tributary that entered at the outfall. The upstream water quality was relatively good according to the water chemistries. Nutrient levels were somewhat elevated but this can be expected considering the fertility of the region.

The WWTP was achieving excellent treatment on the day of the survey. The BOD<sub>5</sub>, SS and NH<sub>3</sub>-N were 4.9 mg/l, 5 mg/l, and 0.1 mg/l respectively. Total P was 7.5 mg/l and NO<sub>2</sub>-N + NO<sub>3</sub>-N was 21 mg/l. The effluent quality had significantly improved over the discharge from the old WWTP.

The mix site was located approximately 300' below the outfall. Due to the flow in the tributary some dilution of the effluent occurs. The BOD<sub>5</sub> was 2.5 mg/l, total P was 4.0 mg/l and the NO<sub>2</sub>-N + NO<sub>3</sub>-N were 15 mg/l.

The final sampling site was located above the first bridge crossing on STH "61". This site was selected because the wastewater should be assimilated at this point. The chemical results indicated that this was the case. Most of the parameters were comparable to the background conditions except for total P. Total P was 1.31 mg/l which was significantly above the background level

of 0.10 mg/l. No discharge level for phosphorus exists in their permit but the high discharge level of phosphorus could lead to excessive algae and macrophyte growth upstream of this point.

An influent and effluent composite sample was also split with WWTP personnel. Results are contained in Table II. The 24-hour composite sample showed very little variation from the grab sample. The WWTP was providing excellent treatment on a 24-hour basis.

Diurnal dissolved oxygen levels remained high enough to support any aquatic life in this section of the Gregory Branch (Table III). The early morning dissolved oxygen level upstream of Highway "61" was 9.4 mg/l. The stream classification changes to full fish and aquatic life in this section, so the 5 mg/l of DO to support fish and aquatic life is being maintained.

Map #1  
Water Chemistry Sampling Location  
Gregory Branch  
September 21-22, 1982

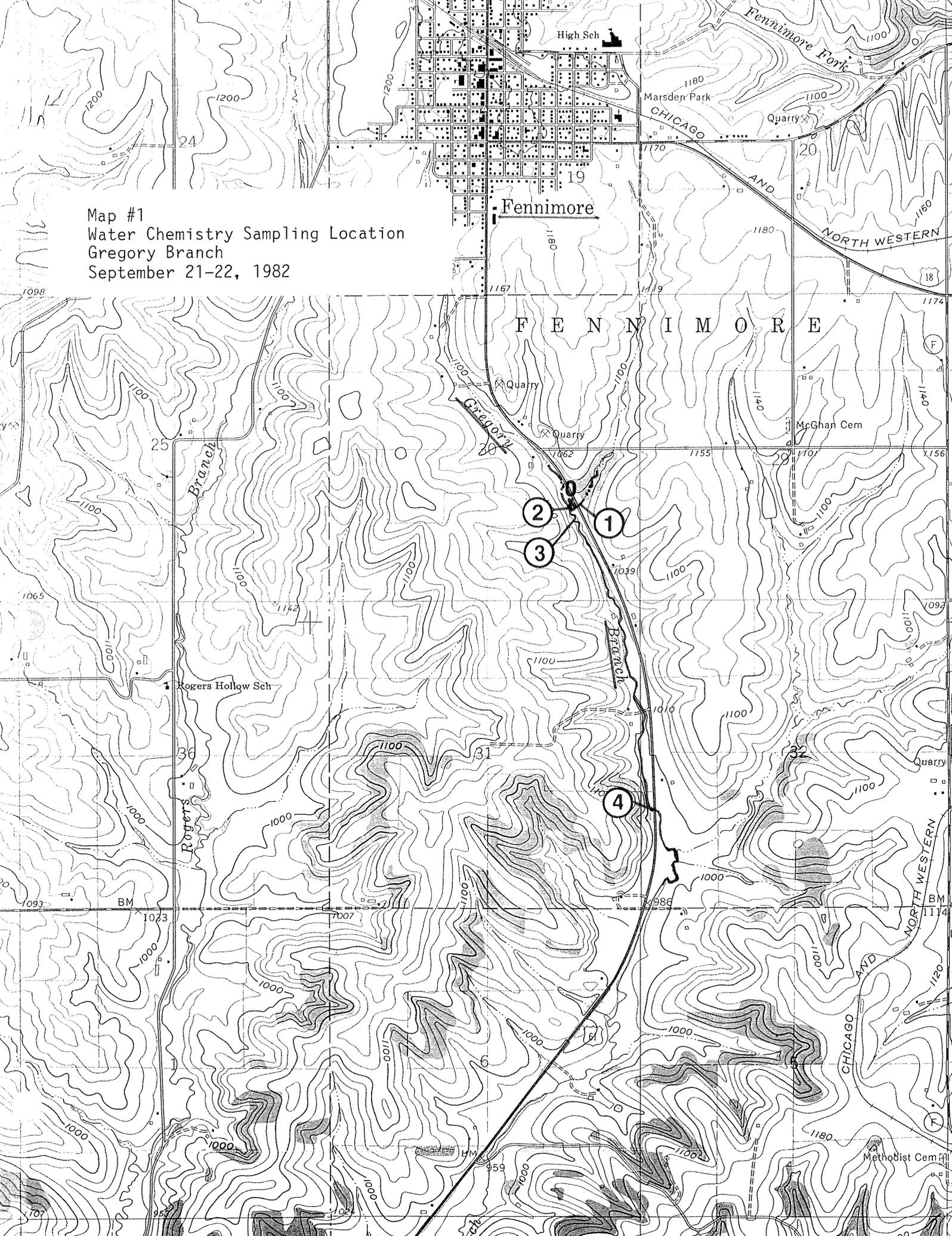


Table II: D.O., Temp., Chemical, and Bacteriological Data from 9/21/82 - 9/22/82

	Date	Time	Temp °C	D.O. mg/l	BOD <sub>5</sub> mg/l	Total P mg/l	S.S. mg/l	TKN mg/l	NH <sub>3</sub> -N mg/l	NO <sub>2</sub> -N+ NO <sub>3</sub> -N mg/l	pH S.U.	F.C.		Flow cfs	Chlorine Residual mg/l		
												F.S. NO./100 ml					
MS1 - Upstream - Trib. to to Gregory Branch	9/21/82	11:36	11.0	12.6	<0.5	0.10	10	0.4	0.03	6.9	8.2	<u>1000</u> 650		0.35			
C2 - Fennimore STP Outfall	9/21/82	11:32 10:00	16.0	9.9	4.9	7.4	5	1.5	0.1	21	7.8	<u>4700</u> 6300		0.71 <sup>1</sup>	0.12		
MS3 - Gregory Branch Mix point of stream & effluent	9/21/82	11:30	14.0	11.4	2.5	4.0	7	0.9	0.04	15	8.1	<u>4200</u> 2100		0.91			
MS4 - Gregory Branch STH "61" first crossing	9/21/82	11:10	11.5	12.2	0.9	1.31	4	0.4	0.03	9.8	8.0	<u>1400</u> 370		1.58			
					<b>COMPOSITE SAMPLES</b>												
Influent Fennimore STP	9/21/82 9/22/82	7:00 7:00			160	10	216	31	16	2.2					<u>MGD</u> 0.372 <sup>1</sup>		
Effluent Fennimore STP	9/21/82 9/22/82	7:00 7:00			2.4	7.0	4	1.6	0.1	21					0.372 <sup>1</sup>		

<sup>1</sup>From STP Influent Meter

TABLE III  
FENNIMORE STP - DIURNALS

9/21/82

	<u>MS1</u> <u>Trib. Upstream</u>	<u>C2</u> <u>Outfall</u>	<u>MS3</u> <u>Gregory Branch Mix</u>	<u>MS4</u> <u>Gregory Branch</u> <u>STH "61"</u>
Time (24 hour)	11:36	11:32	11:30	11:10
D.O. (mg/l)	12.6	9.9	11.4	12.2
Temp (°C)	11.0	16.0	14.0	11.5
pH (S U)	8.2	7.8	8.1	8.0

9/22/82

Time (24 hour)	6:00	5:55	5:49	5:40
D.O. (mg/l)	10.2	8.3	9.8	9.4
Temp. (°C)	8.9	16.0	11.4	9.0

## BIOLOGY

Two sections of the Gregory Branch were surveyed with a backpack fish shocker (Map #2). The first site was located approximately 150' below the outfall and was surveyed back upstream to it. The site was surveyed in October 1988 (Table IV). The sample was dominated by creek chubs and common shiners which are considered tolerant species.

The second survey site was located at the first crossing on STH "61" at the end of the intermediate section. This site was also surveyed in October 1988 (Table V). It was also dominated by creek chubs and common shiners. Also included is data from May, 1978 which was collected for the fish distribution study (Table VI). This data would indicate species commonly found in a stream of this size and flow. Considering the quality of the effluent; N.P.S. runoff and low flow would probably impact the sites more than the WWTP.

Macroinvertebrate samples were taken October 4, 1988, at the same locations as the fish survey sites. The first station was located approximately 75' below the outfall (Table VII). According to the HBI data the site was considered to have "fairly poor water quality". The sample was totally dominated by Simulium vittatum which has a biotic index of 7.00, and this is reflected in the final HBI value. The remaining macroinvertebrates all had a biotic index value between 1.00 and 6.00.

The second station was located a short distance upstream of STH "61" (Table VIII). According to the HBI data the site was considered to have "fair water

Map #2  
Fish and HBI Sampling Locations  
Gregory Branch  
October 1988, May, 1978

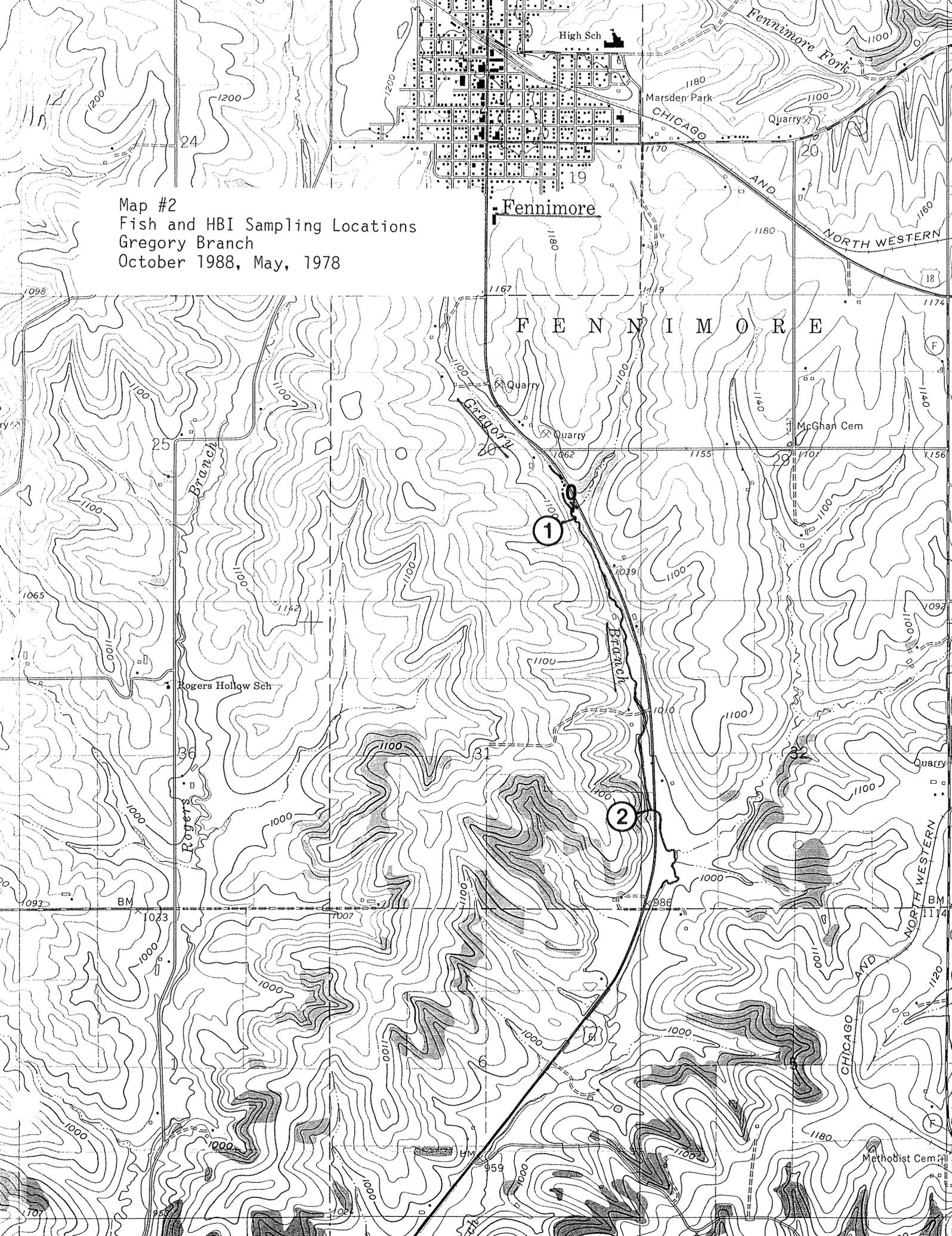


TABLE: IV List of fish for sampling site: Directly below Fennimore Oufall (1)

DATE: 10/4/88 TwN 6N, Rng 2W, Sec. 30, 1/4 1/4 NE SE Stream: Gregory Branch

Station mileage: 6.05 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	2	Intolerant
M28	COMMON SHINER	CYPRINIDAE	Notropis cornutus	11	Tolerant
M43	SOUTHERN REDBELLY DACE	CYPRINIDAE	Phoxinus erythrogaster	3	Intolerant
M50	CREEK CHUB	CYPRINIDAE	Semotilus atromaculatus	24	Tolerant

TABLE: V List of fish for sampling site: STH "61" (2)

DATE: 10/4/88 Twn 6N, Rng 2W, Sec. 32, 1/4 1/4 NW SW STREAM: Gregory Branch

Station mileage: 4.9E County: 22

SOURCE OF DATA: 05 GEAR: 3 EFFORT: 03

CODE	COMMON NAME	FAMILY	GENUS/SPECIES	# FISH	TOLERANCE LEVEL
M28	COMMON SHINER	CYPRINIDAE	Notropis cornutus	8	Tolerant
M43	SOUTHERN REDBELLY DACE	CYPRINIDAE	Phoxinus erythrogaster	2	Intolerant
M50	CREEK CHUB	CYPRINIDAE	Semotilus atromaculatus	7	Tolerant
W05	GREEN SUNFISH	CENTRARCHIDAE	Lepomis cyanellus	1	Sport Fish

TABLE: VI List of fish for sampling site: STH "61" (2)

DATE: 5/17/78 Twn 6N, Rng 2W, Sec. 32, 1/4 1/4 NW SW STREAM: Gregory Branch

Station mileage: 4.9D County: 22

SOURCE OF DATA: 11 GEAR: B EFFORT: 08

CODE	COMMON NAME	FAMILY	GENUS/SPECIES	# FISH	TOLERANCE LEVEL
M05	STONEROLLERS	CYPRINIDAE	Campostoma spp.	19	Intolerant
M06	CENTRAL STONEROLLER	CYPRINIDAE	Campostoma anomalum	6	Intolerant
M43	SOUTHERN REDBELLY DACE	CYPRINIDAE	Phoxinus erythrogaster	1	Intolerant
M50	CREEK CHUB	CYPRINIDAE	Semotilus atromaculatus	3	Tolerant
N09	WHITE SUCKER	CATOSTOMIDAE	Catostomus commersoni	1	Tolerant

HBI \_ 6.730 Rep1 \_ Rep2 \_ Rep3 \_\_\_\_\_  
 Sample ID # \_B81004-22-02 Waterbody Name \_GREGORY BR.  
 Water Temp (Celsius) \_ Dissolved Oxygen (mg/l) \_  
 Sample Location: NE SE S30 T 6N R 2W\_ Master Waterbody # \_  
 Project Name \_TRIENNIAL STANDARDS Storet Station # \_ 12  
 Ave. Stream Width (Ft.) at Site \_2.0 Ave. Stream Depth (Ft.) at Site \_0.4  
 Collector \_SCHLESSER, R. Field # 02 Rep 1\_  
 Measured Velocity (fps) \_  
 Sorter \_GEHRING, T. Est. Velocity (fps) \_  
 Est % of sample sorted \_10 \_Moderate (0.5-1.5)  
 Taxonomist \_DIMICK, J. Sampled Habitat  
 Location Description \_75 FT. BELOW FENNIMORE OUTFALL \_1. Riffle

Est. Time Spent Sampling (Min.) \_ 3\_\_  
 Sampling Device \_1. D Frame

## Substrate at Site Location (%)

0.0 Bedrock	53.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	20.0 Gravel	15.0 Silt	0.0 Detritus	12.0 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 2 % 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		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	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			3
Construction Runoff		2	
Point Source(Specify Type)		2	FENNIMORE WWTP
Other (Specify)			

SAMPLE ID# BB1004-22-02

*** TAXA ***	*** SPECIES ***	TAXONOMIC KEY USED	TOL VAL	ORGANISM ID	ORGANISM COUNT	REP1	REP2	REP3
ODONATA								
CALOPTERYGIDAE								
CALOPTERYX	MACULATA	*1	5.00	03020102	2	0	0	0
COENAGRIONIDAE								
ARGIA	VIOLACEA	*2		03030207	5	0	0	0
**POOR SPECIMEN**		*3		03030900	1	0	0	0
TRICHOPTERA								
BRACHYCENTRIDAE								
BRACHYCENTRUS	OCCIDENTALIS	*4	1.00	04010104	1	0	0	0
HYDROPSYCHIDAE								
HYDROPSYCHE	BETTENI	*5	6.00	04040201	6	0	0	0
COLEOPTERA								
ELMIDAE								
OPTIOSERVUS		*3	4.00	07020500	5	0	0	0
DIPTERA								
SIMULIIDAE								
SIMULIUM	VITTATUM	*4	7.00	08110217	101	0	0	0
*** TOTALS: ***					121			
						0		
*** BIOTIC INDEX: ***					6.730			

Taxonomic Key Code References

- \*1 Walker 1953
- \*2 Hilsenhoff 1981,82
- \*3 Hilsenhoff 1981
- \*4 Hilsenhoff 1985
- \*5 Hilsenhoff 1981,86

HBI 5.783 Rep1 Rep2 Rep3  
 Sample ID # 881004-22-03 Waterbody Name GREGORY BR.  
 Water Temp (Celsius) Dissolved Oxygen (mg/l)  
 Sample Location: NW SW S32 T 6N R 2W Master Waterbody #  
 Project Name TRIENNIAL STANDARDS Storet Station # 14  
 Ave. Stream Width (Ft.) at Site 2.5 Ave. Stream Depth (Ft.) at Site 0.35  
 Collector SCHLESSER, R. Field # 03 Rep 1  
 Measured Velocity (fps)  
 Sorter GEHRING, T. Est. Velocity (fps)  
 Est % of sample sorted 20 Moderate (0.5-1.5)  
 Taxonomist DIMICK, J. Sampled Habitat  
 Location Description UPS. STH "61" 1. Riffle

Est. Time Spent Sampling (Min.) 3

Sampling Device 1. D Frame

Substrate at Site Location (%)

0.0 Bedrock	25.0 Rubble	0.0 Sand	0.0 Clay	0.0 Muck
0.0 Boulders	50.0 Gravel	15.0 Silt	0.0 Detritus	10.0 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 0 % 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	1			
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	1		
Down/Up Stream Impoundment	1		
Low Flows		2	
Wetlands	1		

Pollutant Sources

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

SAMPLE ID# 891004-22-03

***	TAXA	***	TAXONOMIC TOL	ORGANISM	ORGANISM			
		SPECIES	KEY VAL	ID	COUNT	REP1	REP2	REP3
			USED					
EPHEMEROPTERA								
BAETIDAE								
	BAETIS	BRUNNEICOLOR	*1	4.00	02010101	22	0	0
		FLAVISTRIGA	*1	4.00	02010104	4	0	0
ODONATA								
COENAGRIONIDAE								
	ENALLAGMA		*2		03030500	1	0	0
TRICHOPTERA								
HYDROPSYCHIDAE								
	HYDROPSYCHE	BETTENI	*3	6.00	04040201	3	0	0
COLEOPTERA								
ELMIDAE								
	OPTIOSERVUS		*2	4.00	07020500	21	0	0
DIPTERA								
CHIRONOMIDAE								
	ORTHOCLADIUS	SP.A	*4	6.00	08054001	2	0	0
SIMULIIDAE								
	SIMULIUM	VITTATUM	*5	7.00	08110217	52	0	0
TIPULIDAE								
	LIMNOPHILA		*2	3.00	08140800	1	0	0
ISOPODA								
ASELLIDAE								
	ASELLUS	INTERMEDIUS	*6	8.00	10010101	10	0	0
*** TOTALS: ***						116	0	0
*** BIOTIC INDEX: ***						5.783		

Taxonomic Key Code References

- \*1       Hilsenhoff 1981,82
- \*2       Hilsenhoff 1981
- \*3       Hilsenhoff 1981,86
- \*4       Hilsenhoff 1981,85
- \*5       Hilsenhoff 1985
- \*6       Williams 1972

quality". The sample had a large percentage of Simulium vittatum (45%) which elevated the final HBI value. The other two dominant species (37%) had a biotic index value of 4.00. Simulium vittatum often dominates a macroinvertebrate sample but sometimes seems out of place with a biotic index value of 7.00; and much of the remaining sample having an index of only 4.00. In such a case there is reason to question the validity of the final HBI value. The macroinvertebrate data is typical for a stream of this size and in this region considering flow, habitat, and other water quality impacts.

#### WWTP

Appendix II contains the 1988 DMR monthly averages for flow, BOD, TSS, and NH<sub>3</sub>-N. According to this data the WWTP has stayed well within their monthly permit limits. The plant is well run and has consistently discharged a high quality effluent ever since it was built.

#### CLASSIFICATION

Based on this review of available chemical, physical, and biological data, the Gregory Branch is properly classified as intermediate fish and aquatic life (D) from the WWTP downstream to the first bridge crossing on STH "61". The remainder of Gregory Branch should remain classified as full fish and aquatic life. This section of stream develops a better pool-riffle ratio and increases in flow.



Gregory Branch

Upstream of Fennimore  
WWTP Outfall-Along STH  
"61".



Gregory Branch

Fennimore WWTP Outfall.



Gregory Branch

Downstream of WWTP  
outfall.



Gregory Branch

Downstream of WWTP  
outfall, HBI and fish  
sampling site.



Gregory Branch

Along STH "61"  
Possible NPS problem  
site.



Gregory Branch

Along STH "61"  
Possible NPS problem  
site.



Gregory Branch

Along STH "61"

Possible NPS problem  
site.



Gregory Branch

Upstream of STH "61",  
first crossing,  
macroinvertebrate and  
fish sampling site.



Gregory Branch

Upstream of STH "61",  
first crossing

APPENDIX I

Stream Gregory Br. Reach Location Downstream of WTP outfall to STH "61" Reach Score/Rating 194/D  
 County Grant Date 10/4/88 Evaluator R. Schlessner 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). 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. 12	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. 12	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. 20
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. 12	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 Warm >1.5' 0	6" to 1' 6 10" to 1.5' 6	3" to 6" 18 6" to 10" 18	<3" 24 <6" 24
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. 10	>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: \_\_\_\_\_ 7 \_\_\_\_\_ 115 \_\_\_\_\_ 72 \_\_\_\_\_

Column Scores E 0 +G 7 +F 115 +P 72 = 194 = Score

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

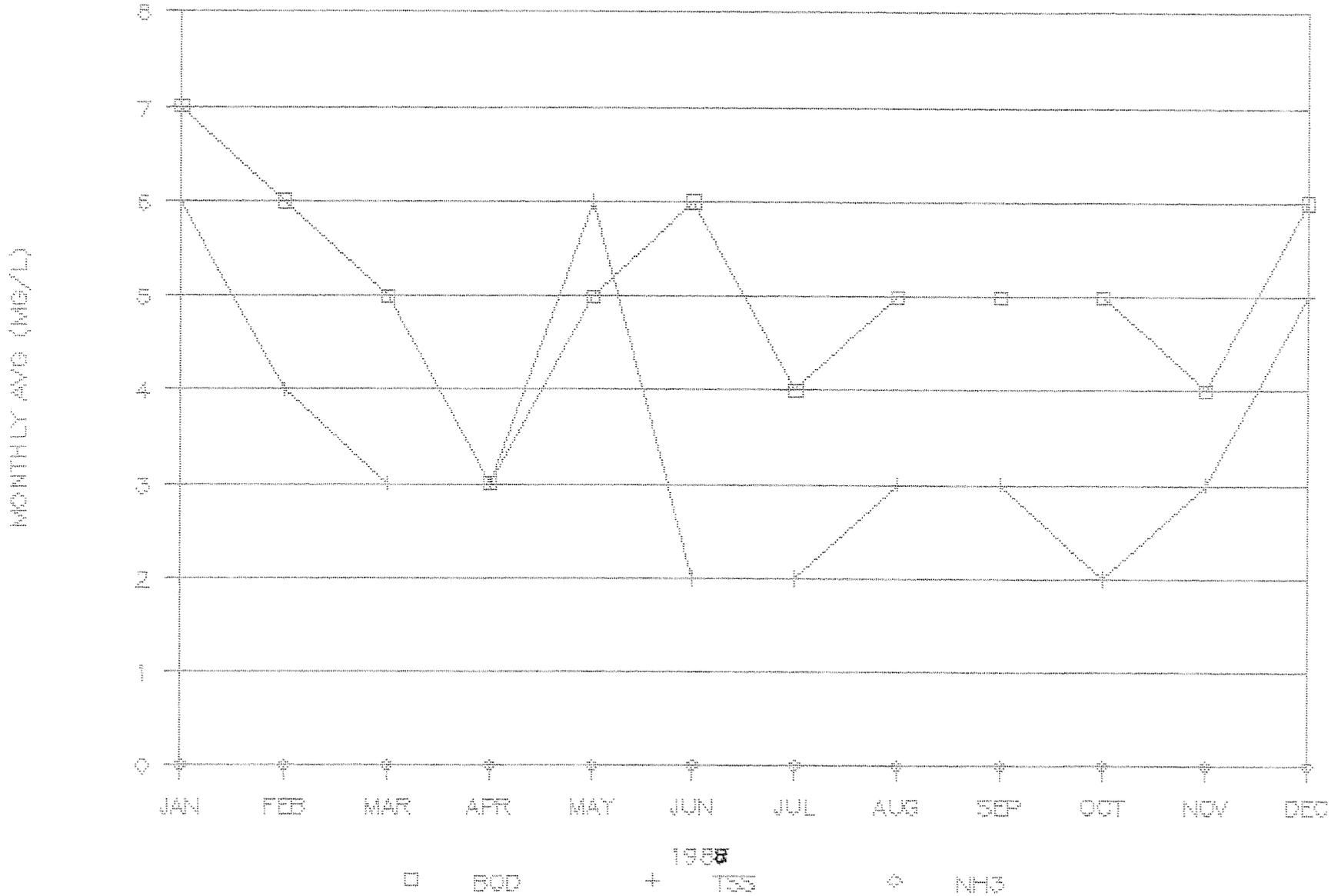
APPENDIX II

FENNIMORE SEWAGE TREATMENT PLANT  
EFFLUENT QUALITY 1988

	FLOW (MGD)	BOD (MG/L)	TSS (MG/L)	NH3-N (MG/L)
JAN	0.2640	7.00	6.00	<1
FEB	0.2590	6.00	4.00	<1
MAR	0.2480	5.00	3.00	<1
APR	0.2400	3.00	3.00	<1
MAY	0.2490	5.00	6.00	<1
JUN	0.2510	6.00	2.00	<1
JUL	0.2270	4.00	2.00	<1
AUG	0.2550	5.00	3.00	<1
SEP	0.2440	5.00	3.00	<1
OCT	0.2640	5.00	2.00	<1
NOV	0.2450	4.00	3.00	<1
DEC	0.2810	6.00	5.00	<1

# FENNIMORE STP

EFFLUENT QUALITY 1958



APPENDIX III

FENNIMORE  
GRANT COUNTY

July 22, 1975

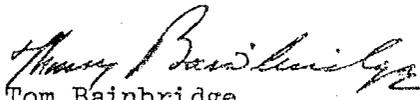
The Fennimore wastewater treatment plant discharges its effluent to the Gregory Branch of the Grant River. The Gregory Branch originates within the City limits of Fennimore and at the treatment plant site the 7Q10 is .04 cfs. The stream in the reach above the treatment plant appears to exhibit a perpetually wet environment. The banks were clearly defined and a benthic community was observed. The stream's natural meanders provide pool and riffle areas for its entire course. Below the existing treatment plant site at the first farm road bridge, the stream is rather slow moving. This area, at the time of survey, was greatly affected by waste discharge. At the second farm road bridge and for the remainder of the Gregory Branch to Highway 61, the water quality looked much improved. The stream velocity was greatly increased and water clarity had improved immensely. The stream picks up additional flow in this area due to tributaries and springs. The stream below Highway 61, roughly two miles below the treatment plant site, is currently being managed as a trout stream.

RECOMMENDATIONS

The Gregory Branch of the Grant River should be classified continuous intermediate fish and aquatic life from its headwaters downstream to the State Highway 61 bridge. From the State Highway 61 bridge to the juncture of the Grant River the classification should be continuous 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; and Tom Bainbridge, Stream Classification Coordinator.

  
Tom Bainbridge  
Stream Classification Coordinator

TB:cb

APPENDIX IV

B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on December 1, 1984 and lasting until June 30, 1989, 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 representative locations.

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 BOD<sub>5</sub> and of total suspended solids shall not exceed 15% of the average influent concentrations, respectively.

EFFLUENT PARAMETERS	EFFLUENT LIMITATIONS					MONITORING REQUIREMENTS	
	Quantity-kg/day(lbs/day)		Other Limitations (Specify Units)			Sample Frequency	Sample Type
	Average <sup>1</sup>	Maximum <sup>1</sup>	Minimum	Average	Maximum		
BOD <sub>5</sub> (monthly)	35.1(77.6)	-	-	15 mg/l	-	5xWeekly	24 hr. composite <sup>2</sup>
BOD <sub>5</sub> (weekly)	-	70.3(155)	-	-	30 mg/l	5xWeekly	24 hr. composite <sup>2</sup>
Suspended Solids(monthly)	46.8(103)	-	-	20 mg/l	-	5xWeekly	24 hr. composite <sup>2</sup>
Suspended Solids	-	70.3(155)	-	-	30 mg/l	5xWeekly	24 hr. composite <sup>2</sup>
pH	-	-	6.0 s.u.	-	9.0 s.u.	Daily	Grab
Residual Chlorine <sup>3</sup>	-	-	-	-	0.5 mg/l	Daily	Grab
Fecal Colliforms(mon.) <sup>3</sup>	-	-	-	#/100 ml	-	Weekly	Grab
Ammonia-Nitrogen (weekly, May-Oct)	-	-	-	3.0 mg/l	-	2xWeekly	24 hr. composite <sup>2</sup>
Ammonia-Nitrogen (weekly, Nov.-April)	-	-	-	6.0 mg/l	-	2xWeekly	24 hr. composite <sup>2</sup>
Dissolved Oxygen	-	-	4.0 mg/l	-	-	5xWeekly	Grab

<sup>1</sup>Based on a design flow of .62 MGD.

<sup>2</sup>Samples shall be composited on a flow proportional basis.

<sup>3</sup>At such time as effluent limitations for fecal coliform and residual chlorine are promulgated in the Wisconsin Administrative Code, 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, continuous disinfection shall be provided.

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) *Wellands*. 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 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 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 <sub>5</sub>	15	30	-	-
Total Suspended Solids	20	30	-	-
NH <sub>3</sub> -N (May-October)	-	-	3	-
NH <sub>3</sub> -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	Monthly Average (mg/1)	Weekly Average (mg/1)	Other (mg/1)
BOD <sub>5</sub>	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. Sinipee 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 Beaver Creek (Randolph)	From the Randolph STP downstream to Beaver Creek Tributary	Noncontinuous	II	Effluent limitations to be determined
	Tributary to Beaver Creek upstream from Beaver Creek	Noncontinuous	I	to be determined
41. Tributary-Beaver Dam River (Reeseville)	Tributary from Reeseville STP to confluence with Beaver Dam River	Noncontinuous	I	A
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	to be determined
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	to be determined
47. Badger Mill Creek (Verona)	Badger Mill Creek from road at Verona STP downstream to STH "69".	Continuous	I	A

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NR 104

48. Tributary - Murphy Creek (Wisconsin Department of Health & Social Services - Oakwood State Camp) Tributary from Oakwood State Camp STP downstream to Murphy Creek Noncontinuous II B

- (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 Juneau 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):

FENNIMORE  
GRANT COUNTY

July 22, 1975

The Fennimore wastewater treatment plant discharges its effluent to the Gregory Branch of the Grant River. The Gregory Branch originates within the City limits of Fennimore and at the treatment plant site the 7Q10 is .04 cfs. The stream in the reach above the treatment plant appears to exhibit a perpetually wet environment. The banks were clearly defined and a benthic community was observed. The stream's natural meanders provide pool and riffle areas for its entire course. Below the existing treatment plant site at the first farm road bridge, the stream is rather slow moving. This area, at the time of survey, was greatly affected by waste discharge. At the second farm road bridge and for the remainder of the Gregory Branch to Highway 61, the water quality looked much improved. The stream velocity was greatly increased and water clarity had improved immensely. The stream picks up additional flow in this area due to tributaries and springs. The stream below Highway 61, roughly two miles below the treatment plant site, is currently being managed as a trout stream.

RECOMMENDATIONS

The Gregory Branch of the Grant River should be classified continuous intermediate fish and aquatic life from its headwaters downstream to the State Highway 61 bridge. From the State Highway 61 bridge to the juncture of the Grant River the classification should be continuous 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; and Tom Bainbridge, Stream Classification Coordinator.



Tom Bainbridge  
Stream Classification Coordinator

TB:cb