

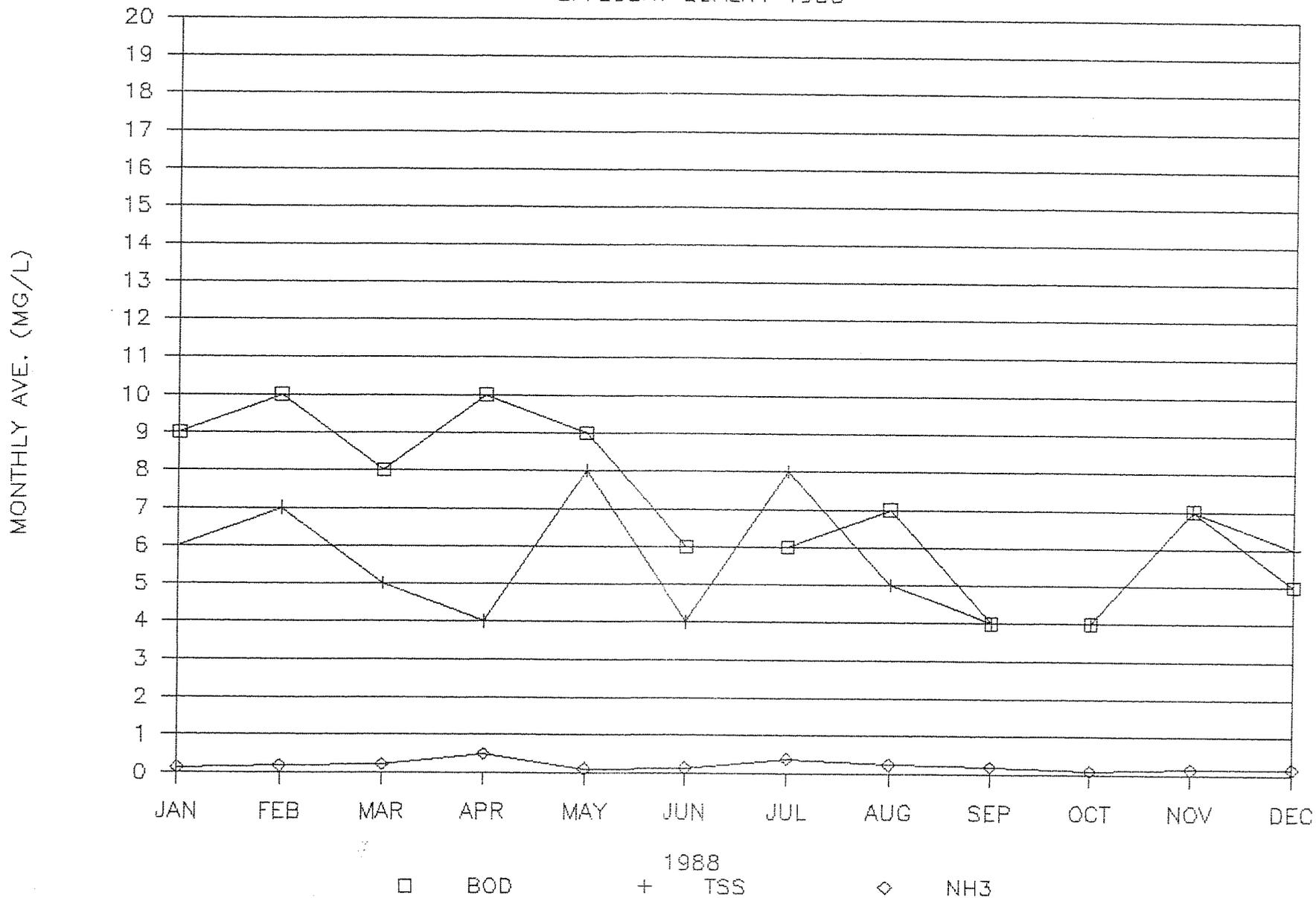
APPENDIX II

KIELER SEWAGE TREATMENT PLANT  
EFFLUENT QUALITY 1988

	FLOW (MGD)	BOD (MG/L)	TSS (MG/L)	NH3-N (MG/L)
JAN	0.0349	9.00	6.00	0.12
FEB	0.0370	10.00	7.00	0.17
MAR	0.0310	8.00	5.00	0.21
APR	0.0290	10.00	4.00	0.50
MAY	0.0286	9.00	8.00	0.09
JUN	0.0252	6.00	4.00	0.12
JUL	0.0256	6.00	8.00	0.38
AUG	0.0252	7.00	5.00	0.22
SEP	0.0263	4.00	4.00	0.18
OCT	0.0243	4.00	4.00	0.08
NOV	0.0227	7.00	7.00	0.14
DEC	0.0240	5.00	6.00	0.16

# KIELER STP

EFFLUENT QUALITY 1988



APPENDIX III

Kieler Sanitary District #1  
Grant County

July 13, 1977

Sinnipee Creek

Surface area = 3.27 acres, Length = 2.7 miles, Gradient = 59 ft./mile

Kieler Sanitary District discharges from a 2 cell stabilization pond into the headwater area of Sinnipee Creek. Sinnipee Creek is located a mile northwest of Kieler and flows southwest to enter the Mississippi River five miles above the Wisconsin-Illinois border. At the present time this headwater area is dry except for the effluent. The effluent travels for approximately 250 yards before it dissipates into the streambed. The streambed remains dry for approximately  $\frac{1}{2}$  mile beyond ~~the~~. At this point the first major spring is located in the NW  $\frac{1}{4}$ , NE  $\frac{1}{4}$ , Section 4, R2W, T1N, on the Martin Kieler farm. There are numerous small springs entering along the entire length of the stream which provide good water quality. The stream is wide and shallow with a rubble-gravel bottom. Sinnipee Creek provides a limited fishery, mostly in its lower reaches due to the backwash of the Mississippi River.

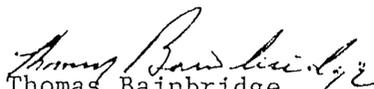
Recommendations

From the Keiler Lagoon outfall downstream to the spring in the NW  $\frac{1}{4}$ , NE  $\frac{1}{4}$ , Section 4, R2W, T1N, the classification should be noncontinuous marginal surface waters. From this point downstream to Bluff Road Bridge the classification should be continuous surface waters not supporting a balanced aquatic community. From the Bluff Road Bridge and for the remainder of Sinnipee Creek 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  
Tom Bainbridge, District Biologist  
Roger Schlessler, Natural Resources Technician

Respectfully submitted,

  
Thomas Bainbridge  
Stream Classification Coordinator

TB:mlu

Stream Classification  
KIELER SANITARY DISTRICT #1  
Grant County  
December 30, 1980

Sinnipee Creek (Q<sub>7</sub> 10 =.15)

The Kieler STP discharges from a two cell stabilization pond into the head-water area of Sinnipee Creek. At the present time the abandonment of the lagoon system is being considered, and would be replaced by a mechanical plant.

Sinnipee Creek is located a mile northwest of Kieler and flows southwest 2.7 miles to enter the Mississippi River five miles above the Wisconsin-Illinois border. Sinnipee Creek at the point of discharge from the Kieler lagoons does not have perennial flow and remains a dry run until the first major springs which are located on the Martin Kieler farm: NW $\frac{1}{4}$ , NE $\frac{1}{4}$ , Sec.4, R. 2 W., T. 1 N. These springs provide a good quantity of high quality groundwater. (See attached chemical data)

During a modified wasteload allocation conducted in June of 1977 (data included), the effluent traveled approximately 250 yards before it dissipated into the soil. The effluent did not reach the spring head which is nearly a half mile beyond this point. During a check made of the stream in the fall of 1980, it was noted that at this time the effluent was reaching the spring head. This was the first occurrence of effluent reaching the spring, which was observed by DNR personnel.

Ground water discharge is quite prevalent along some sections of the stream and is evidenced by abundant growth of watercress. Filamentous algae growth becomes quite heavy on the streambed by late summer. It's over-abundance signifies high levels of nutrients entering the stream.

The substrate varies considerably along the stream's entire length. It consists of a combination of bedrock, boulder, rubble, gravel, sand and silt. Siltation is most significant in the headwaters and at the mouth. The slopes surrounding the spring head have been heavily grazed which has resulted in siltation problems and excessive streambank degradation.

Much of the stream is wide and shallow, which provides for a limited amount of fish cover. Overgrazing of the streambanks is a problem and leaves little bank vegetation. The stream has a high gradient (59 ft. per mile) and is subject to flash flooding and high stream velocities. Due to the high flood velocities, the unvegetated banks are easily eroded. Also because of the high flood velocities, the stream bed is susceptible to scouring and deposition. Pools are lacking on some sections of the stream because of expanses of stratified bedrock which form the streambed.

Presently, the upper portion of the stream is limited to mostly forage species. Some sport fishery exists in the back wash of the Mississippi River where the deeper pools are, and some of these fish probably move further upstream during spawning periods. At this time, due to the lack of habitat, a significant sport fishery is probably not feasible on much of the stream thread.

A macroinvertebrate sample was taken upstream of Bluff Road on 4/23/79 and 10/24/79 as part of the Galena Priority Watershed Project. Hilsenhoff's Biotic Index (which is an indicator of water quality) was used to determine the quality

of the stream. Aquatic organisms are assigned values from 0 to 5. An aquatic organism assigned a 0 value is very intolerant of pollution and an aquatic organism assigned a value of 5 is considered to be very tolerant of pollution. According to the biotic index value obtained here (Table 1 and 2), the site had poor water quality. It is difficult to determine the effects on water quality that the WWTP is having on this site. Non point source runoff has also contributed to water quality problems.

The chemical data which is included shows that the stream has good water quality in the absence of effluent and surface water runoff. The samples which were recently taken from the lagoons had a BOD<sub>5</sub> of under 20 mg/l. But the suspended solids were high, which is a problem inherent to a lagoon system, because of the prolific growth of algae. A sample taken on 11/6/80 above the Sinnipee Creek spring head showed that there was assimilation of the effluent before it reached perennial flow. But a lot of planktonic algae had not settled out and would ultimately be deposited on the bed of Sinnipee Creek. When the algae eventually dies off, it requires oxygen to decompose. The oxygen used is taken from the stream which reduces the amount of dissolved oxygen available for fish and aquatic life.

Regardless of the present fishery in the headwater spring area, consideration should be given to the protection of it. This series of springs provide much of the high quality ground water for Sinnipee Creek. Since no dilution of the effluent occurs (other than surface water runoff) before this spring head, effluent limits should be such that the stream's water quality is protected. To protect the water quality of Sinnipee Creek, the classification from the springs located in the NW $\frac{1}{4}$ , NE $\frac{1}{4}$ , Sec. 4, R. 2 W., T. 1 N., downstream to the juncture with the Mississippi River should be upgraded to continuous fish and aquatic life. The classification of the section of the stream from the lagoon outfall downstream to the spring head remains unchanged. This classification is non-continuous marginal, diffused surface waters.

  
Roger Schlessner  
Water Quality Biologist

Chemical Data

Kieler STP

6/29/77 Time - 9:23

Water Temp.	(°C)	18.0
D. O.	(mg/l)	4.6
pH	(SU)	9.1
BOD <sub>5</sub>	(mg/l)	35.0
Org.-N	(mg/l)	9.4
NH <sub>3</sub> -N	(mg/l)	<0.02
NO <sub>2</sub> -N	(mg/l)	<0.02
NO <sub>3</sub> -N	(mg/l)	<0.02

Springs on Martin Kieler Farm

6/29/77 Time - 11:15

Water Temp.	(°C)	10.5
D.O.	(mg/l)	5.6
pH	(SU)	7.3
BOD <sub>5</sub>	(mg/l)	4.5
Org.-N	(mg/l)	0.4
NH <sub>3</sub> -N	(mg/l)	0.22
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	2.5

Bluff Road Bridge

6/29/77 Time - 11:51

Water Temp.	(°C)	14.2
D.O.	(mg/l)	8.9
BOD <sub>5</sub>	(mg/l)	3.3
Org.-N	(mg/l)	0.2
NH <sub>3</sub> -N	(ng/l)	<0.02
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	1.1

Flow taken at Peddle Hollow Road

7/13/77 0.1729 cfs Time 11:35

D.O.	(mg/l)	12.9
Water Temp	(°C)	15.0
pH	(SU)	8.4

Flow taken at Bluff Road

7/13/77	0.7323 cfs.	Time 12:08
D.O.	(mg/l)	12.8
Water Temp.	(°C)	14.1
pH	(SU)	8.5

Kieler Lagoon

7/13/77	Time 12:37	
D.O.	(mg/l)	>20.0
Water Temp.	(°C)	22.0
pH	(SU)	9.6

Spring on Martin Kieler

5/21/80 Time - 11:20

Water Temp.	(°C)	13.9
pH	(SU)	7.2
BOD <sub>6</sub>	(mg/l)	<4.0
NH <sub>3</sub> -N	(mg/l)	0.02
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	2.4

Kieler STP

10/27/80 Time - 12:02

Water Temp.	(°C)	4.5
BOD <sub>6</sub>	(mg/l)	19.0
Sol. BOD <sub>6</sub>	(mg/l)	4.3
Lab. pH	(SU)	9.3
S.S.	(mg/l)	90.0
Tot. P	(mg/l)	2.96
Org. N	(mg/l)	9.2
NH <sub>3</sub> -N	(mg/l)	<0.02
NO <sub>3</sub> -N	(mg/l)	<0.02

Kieler STP

11/6/80 Time - 12:40

BOD <sub>5</sub>	(mg/l)	18.0
Sol. BOD <sub>5</sub>	(mg/l)	2.9
Lab pH	(SU)	9.8
S.S.	(mg/l)	104.0
Org. N	(mg/l)	8.1
NH <sub>3</sub> -N	(mg/l)	<0.1
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	<0.1

Above Sinnipee Creek Spring Head

11/6/80 Time - 11:50

BOD <sub>5</sub>	(mg/l)	14.0
Sol. BOD <sub>5</sub>	(mg/l)	6.3
Lab pH	(SU)	8.7
S.S.	(mg/l)	56.0
Org. N	(mg/l)	5.4
NH <sub>3</sub> -N	(mg/l)	0.2
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	0.1

Table 1: Macroinvertebrate Data Sinnipee Creek - Bluff Road

4/23/79

Taxa	n	a	nxa
DIPTERA			
MUSCIDAE			
<u>Limnophora</u> sp.	1	2	2
SIMULIDAE			
<u>Simulium tuberosum</u>	1	2	2
TRICHOPTERA			
<u>Cheumatopsyche</u> spp.	11	3	33
<u>Chimarra atterrима</u>	2	2	4
<u>Symphitopsyche slossonae</u>	1	2	2
AMPHIPODA			
<u>Gammarus pseudolimneus</u>	2	2	4
ISOPODA			
<u>Asellus intermedius</u>	91	5	455
Total =	109		502
Biotic Index = $\frac{502}{109} = 4.61$			

Table 2: Sinnipee Creek - Bluff Road

10/24/79

Taxa	n	a	nxa
DIPTERA			
CHIRONOMIDAE			
<u>Microtendipes</u> sp.	1	3	3
<u>Polypedilum</u> spp.	2	3	6
<u>Thienemannimyia</u> complex	2	3	6
MUSCIDAE			
<u>Limnophora</u> sp.	1	2	2
EPHEMEROPTERA			
<u>Baetis brunneicolor</u>	2	2	4
<u>Baetis phoebus</u>	13	2	26
<u>Stenacron interpunctatum</u>	1	3	3
TRICHOPTERA			
<u>Cheumatopsyche</u> spp.	32	3	96
<u>Chimarra atterrима</u>	11	2	22
<u>Hydropsyche betteni</u>	1	3	3
<u>Symphitopsyche bifida</u> group	1	3	3
<u>Symphitopsyche riola</u>	2	2	4
<u>Symphitopsyche slossonae</u>	3	2	6
ISOPODA			
<u>Asellus intermedius</u>	53	5	265
Total =	125		449
Biotic Index = $\frac{449}{125} = 3.59$			

APPENDIX IV

B. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting until December 31, 1987, 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	Sample
	Average	Maximum	Minimum	Average	Maximum	Frequency	Type
Flow - MGD	-	-	-	-	-	Continuous	
BOD <sub>5</sub> (weekly) (May-Oct)	5.1(11.3) <sup>1</sup>	-	-	15 mg/l	-	3x Weekly	24-Hr. Comp <sup>2</sup>
BOD <sub>5</sub> (daily) (May-Oct)	10.2(22.5) <sup>1</sup>	-	-	-	30 mg/l	3x Weekly	24-Hr. Comp <sup>2</sup>
BOD <sub>5</sub> (monthly)(Nov-Apr)	10.2(22.5) <sup>1</sup>	-	-	30 mg/l	-	3x Weekly	24-Hr. Comp <sup>2</sup>
BOD <sub>5</sub> (weekly) (Nov-Apr)	15.3(33.7) <sup>1</sup>	-	-	45 mg/l	-	3x Weekly	24-Hr. Comp <sup>2</sup>
Suspended Solids (weekly) (May-Oct)	5.1(11.3) <sup>1</sup>	-	-	15 mg/l	-	3x Weekly	24-Hr. Comp <sup>2</sup>
Suspended Solids (daily) (May-Oct)	10.2(22.5) <sup>1</sup>	-	-	-	30 mg/l	3x Weekly	24-Hr. Comp <sup>2</sup>
Suspended Solids(monthly) (Nov-Apr)	10.2(22.5) <sup>1</sup>	-	-	30 mg/l	-	3x Weekly	24-Hr. Comp <sup>2</sup>
Suspended Solids (weekly) (Nov-Apr)	15.3(33.7) <sup>1</sup>	-	-	45 mg/l	-	3x Weekly	24-Hr. Comp <sup>2</sup>
pH (daily)	-	-	6.0	-	9.0	Daily	Grab
Residual Chlorine (daily) <sup>3</sup>	-	-	-	-	0.5 mg/l	Daily	Grab
Fecal Coliforms <sup>3</sup> (monthly)	-	-	-	#/100 ml	-	Weekly	Grab
Ammonia-Nitrogen (weekly) (May 1 through Oct. 31)	3.4(7.5) <sup>1</sup>	-	-	10 mg/l	-	3x Weekly	24-Hr. Comp <sup>2</sup>
Ammonia-Nitrogen (weekly) (Nov. 1 through April 30)	-	-	-	mg/l	-	3x weekly	20-Hr. Comp <sup>2</sup>
Dissolved Oxygen (daily)	-	-	4.0 mg/l	-	-	Daily	Grab

<sup>1</sup>Based on a design flow of 0.090 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	Variations and additions appli- cable in the Lake Michigan district (p. 44)
NR 104.02	Surface water classifications and effluent limitations (p. 34)	NR 104.08	Variations and additions appli- cable in the north central dis- trict (p. 48)
NR 104.03	Classification of surface waters and antidegradation (p. 37)	NR 104.09	Variations and additions appli- cable in the west central dis- trict (p. 49)
NR 104.04	Provision for changes (p. 38)	NR 104.10	Variations and additions appli- cable in the northwest district (p. 52)
NR 104.05	Variations and additions appli- cable in the southern district (p. 38)		
NR 104.06	Variations and additions appli- cable 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) Irrecoverable 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 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.

(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/	Weekly Average (mg/	Other (mg/l)
	1)	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, because 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 Spring Brook in Clinton Township	Effluent ditch	II	B
8. Tributary - Dead Creek (Clyman)	Tributary from Clyman STP downstream to Dead Creek	Continuous	II	NA
9. West Branch Pecatonica River (Cobb)	From the Cobb STP downstream to confluence with an unnamed tributary NE¼, NW¼, Sec. 2, T5N, R1E.	Noncontinuous	II	B
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	

DEPARTMENT OF NATURAL RESOURCES 39  
NR 104

13. Indian Creek and Tributary (Dickeyville)	Tributary from Dickeyville STP to confluence with Indian Creek	Noncontinuous	II	NA
	Indian Creek from above tributary downstream to confluence with Platte River	Continuous	I	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, SE $\frac{1}{4}$ , SE $\frac{1}{4}$ , 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 (Ixonía San. Dist.)	From the Ixonía San. Dist. STP downstream to the juncture with the Rock River Tributary	Noncontinuous	II	B
	Rock River Tributary from above tributary to confluence with Rock River	Continuous	II	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"	Effluent ditch	II	B
	From CHT "M" to St. Helena Rd.	Continuous	I	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"	Noncontinuous	I	A
	From CTH "V" to Harper's Mill Pond	Continuous	I	NA
26. Tributary - Pigeon Creek (Lancaster)	Tributary from Lancaster STP downstream to south line of section 10	Continuous	II	Effluent limitations to be determined
	Tributary from above point downstream to confluence with Pigeon Creek	Continuous	I	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	A
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	
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	A

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
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- (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):

Stream Classification  
KIELER SANITARY DISTRICT #1  
Grant County  
December 30, 1980

Sinnipee Creek (Q<sub>7</sub> 10 = .15)

The Kieler STP discharges from a two cell stabilization pond into the head-water area of Sinnipee Creek. At the present time the abandonment of the lagoon system is being considered, and would be replaced by a mechanical plant.

Sinnipee Creek is located a mile northwest of Kieler and flows southwest 2.7 miles to enter the Mississippi River five miles above the Wisconsin-Illinois border. Sinnipee Creek at the point of discharge from the Kieler lagoons does not have perennial flow and remains a dry run until the first major springs which are located on the Martin Kieler farm: NW $\frac{1}{4}$ , NE $\frac{1}{4}$ , Sec. 4, R. 2 W., T. 1 N. These springs provide a good quantity of high quality groundwater. (See attached chemical data)

During a modified wasteload allocation conducted in June of 1977 (data included), the effluent traveled approximately 250 yards before it dissipated into the soil. The effluent did not reach the spring head which is nearly a half mile beyond this point. During a check made of the stream in the fall of 1980, it was noted that at this time the effluent was reaching the spring head. This was the first occurrence of effluent reaching the spring, which was observed by DNR personnel.

Ground water discharge is quite prevalent along some sections of the stream and is evidenced by abundant growth of watercress. Filamentous algae growth becomes quite heavy on the streambed by late summer. It's over-abundance signifies high levels of nutrients entering the stream.

The substrate varies considerably along the stream's entire length. It consists of a combination of bedrock, boulder, rubble, gravel, sand and silt. Siltation is most significant in the headwaters and at the mouth. The slopes surrounding the spring head have been heavily grazed which has resulted in siltation problems and excessive streambank degradation.

Much of the stream is wide and shallow, which provides for a limited amount of fish cover. Overgrazing of the streambanks is a problem and leaves little bank vegetation. The stream has a high gradient (59 ft. per mile) and is subject to flash flooding and high stream velocities. Due to the high flood velocities, the unvegetated banks are easily eroded. Also because of the high flood velocities, the stream bed is susceptible to scouring and deposition. Pools are lacking on some sections of the stream because of expanses of stratified bedrock which form the streambed.

Presently, the upper portion of the stream is limited to mostly forage species. Some sport fishery exists in the back wash of the Mississippi River where the deeper pools are, and some of these fish probably move further upstream during spawning periods. At this time, due to the lack of habitat, a significant sport fishery is probably not feasible on much of the stream thread.

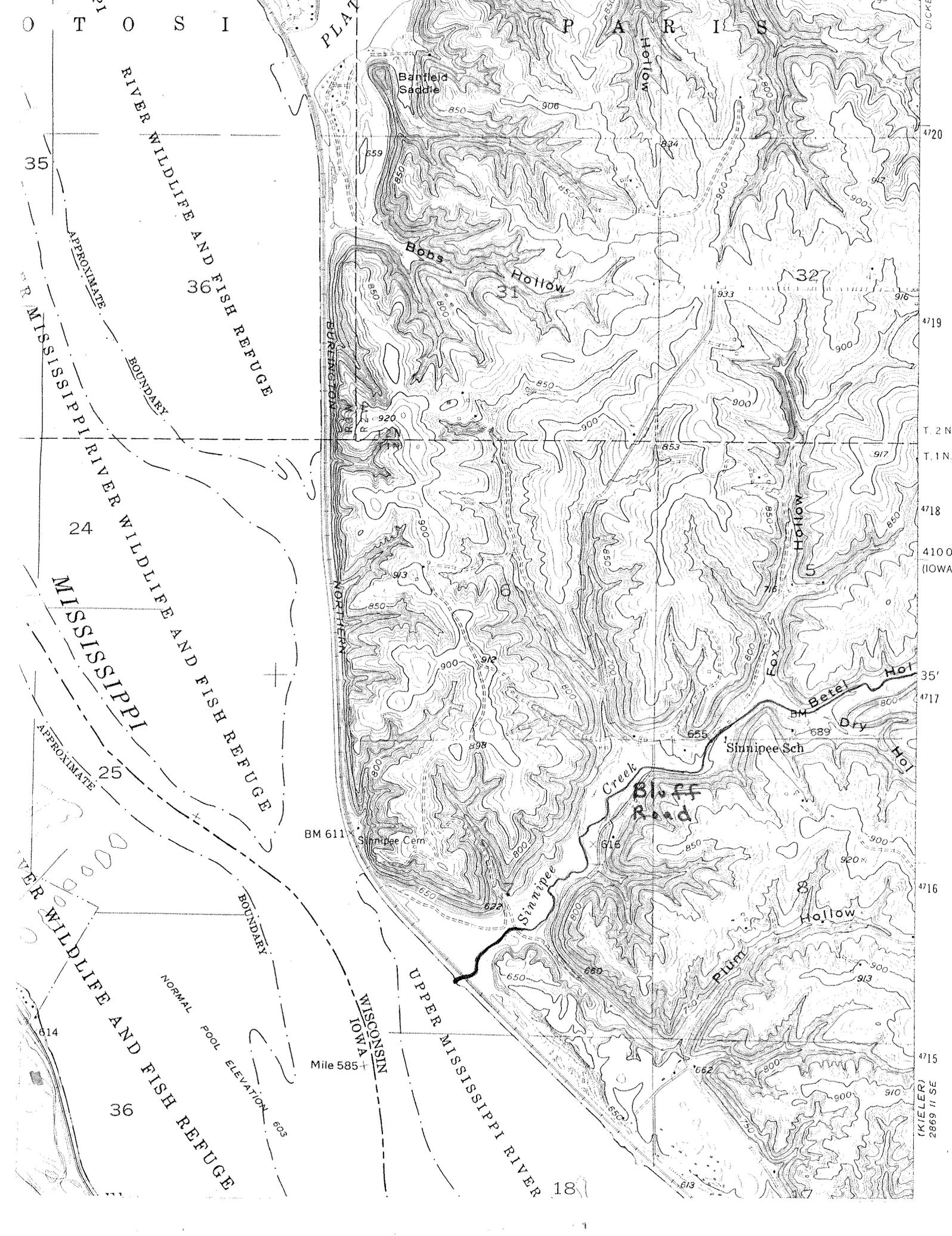
A macroinvertebrate sample was taken upstream of Bluff Road on 4/23/79 and 10/24/79 as part of the Galena Priority Watershed Project. Hilsenhoff's Biotic Index (which is an indicator of water quality) was used to determine the quality

of the stream. Aquatic organisms are assigned values from 0 to 5. An aquatic organism assigned a 0 value is very intolerant of pollution and an aquatic organism assigned a value of 5 is considered to be very tolerant of pollution. According to the biotic index value obtained here (Table 1 and 2), the site had poor water quality. It is difficult to determine the effects on water quality that the WWTP is having on this site. Non point source runoff has also contributed to water quality problems.

The chemical data which is included shows that the stream has good water quality in the absence of effluent and surface water runoff. The samples which were recently taken from the lagoons had a BOD<sub>5</sub> of under 20 mg/l. But the suspended solids were high, which is a problem inherent to a lagoon system, because of the prolific growth of algae. A sample taken on 11/6/80 above the Sinnipee Creek spring head showed that there was assimilation of the effluent before it reached perennial flow. But a lot of planktonic algae had not settled out and would ultimately be deposited on the bed of Sinnipee Creek. When the algae eventually dies off, it requires oxygen to decompose. The oxygen used is taken from the stream which reduces the amount of dissolved oxygen available for fish and aquatic life.

Regardless of the present fishery in the headwater spring area, consideration should be given to the protection of it. This series of springs provide much of the high quality ground water for Sinnipee Creek. Since no dilution of the effluent occurs (other than surface water runoff) before this spring head, effluent limits should be such that the stream's water quality is protected. To protect the water quality of Sinnipee Creek, the classification from the springs located in the NW<sup>1</sup>/<sub>4</sub>, NE<sup>1</sup>/<sub>4</sub>, Sec. 4, R. 2 W., T. 1 N., downstream to the juncture with the Mississippi River should be upgraded to continuous fish and aquatic life. The classification of the section of the stream from the lagoon outfall downstream to the spring head remains unchanged. This classification is non-continuous marginal, diffused surface waters.

  
Roger Schlessor  
Water Quality Biologist



O T O S I

P A R R I S

MISSISSIPPI RIVER WILDLIFE AND FISH REFUGE

APPROXIMATE BOUNDARY

MISSISSIPPI RIVER WILDLIFE AND FISH REFUGE

MISSISSIPPI RIVER WILDLIFE AND FISH REFUGE

NORMAL POOL ELEVATION 503

WISCONSIN IOWA

UPPER MISSISSIPPI RIVER

BM 611 Sinuipex Cem

Barrfield Saddle

Bobs Hollow

Hollow

Bluff Road

Sinuipex Creek

Sinuipex Sch

Hollow

Betel Dry

Hollow

plum

35

36

24

25

36

850

906

859

850

850

834

800

943

900

850

900

850

32

916

900

920

900

850

853

917

900

850

913

900

850

716

850

800

800

912

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655

800

689

BM 611

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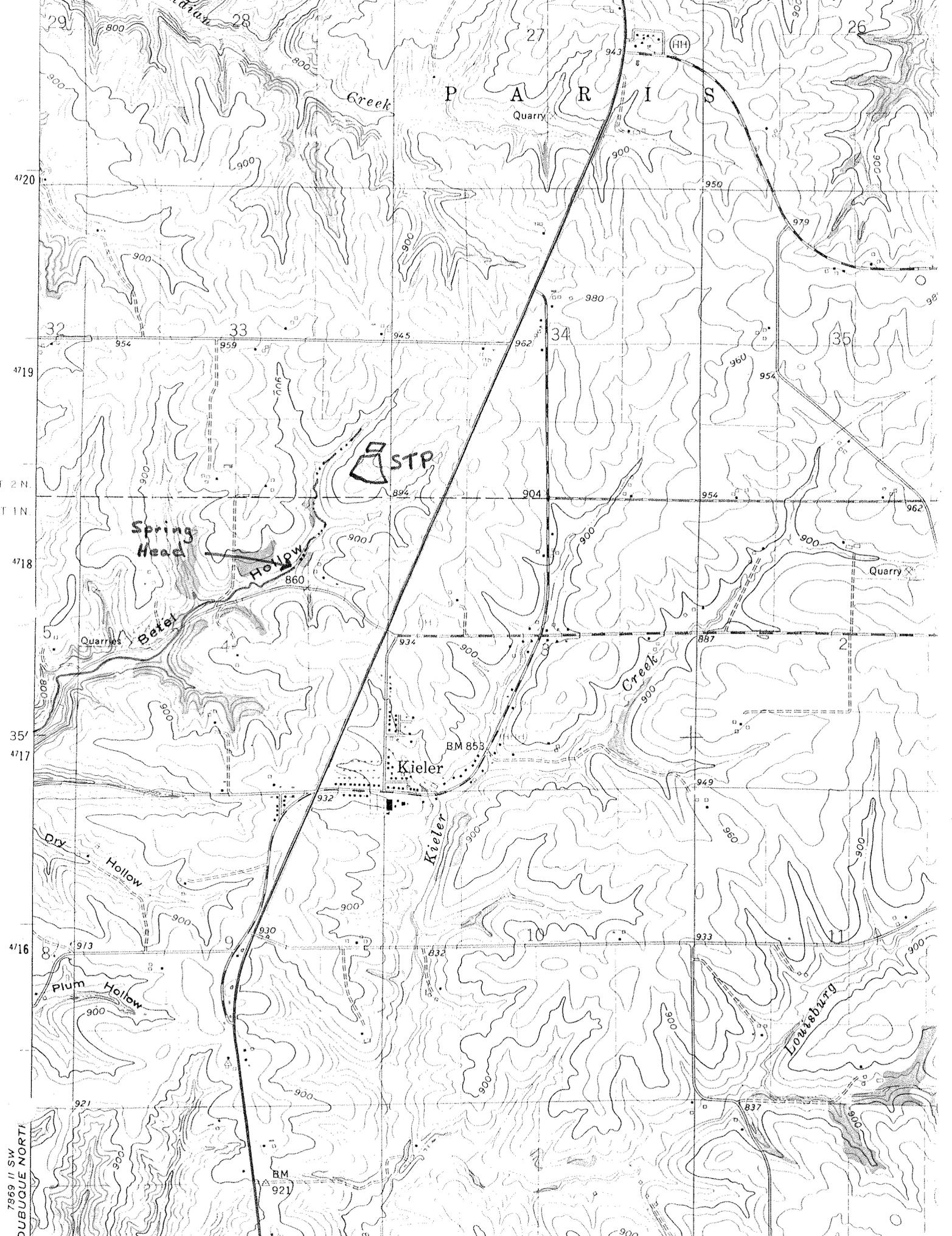
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910

DICKER 4720 4719 T. 2 N. T. 1 N. 4718 4100 (IOWA) 35' 4717 4716 4715 (KIPLER) 2869 11 SE



7869 11 SW  
(DUBUQUE NORTH)

Chemical Data

Kieler STP

6/29/77                      Time - 9:23

Water Temp.	(°C)	18.0
D. O.	(mg/l)	4.6
pH	(SU)	9.1
BOD <sub>5</sub>	(mg/l)	35.0
Org.-N	(mg/l)	9.4
NH <sub>3</sub> -N	(mg/l)	<0.02
NO <sub>2</sub> -N	(mg/l)	<0.02
NO <sub>3</sub> -N	(mg/l)	<0.02

Springs on Martin Kieler Farm

6/29/77                      Time - 11:15

Water Temp.	(°C)	10.5
D.O.	(mg/l)	5.6
pH	(SU)	7.3
BOD <sub>5</sub>	(mg/l)	4.5
Org.-N	(mg/l)	0.4
NH <sub>3</sub> -N	(mg/l)	0.22
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	2.5

Bluff Road Bridge

6/29/77                      Time - 11:51

Water Temp.	(°C)	14.2
D.O.	(mg/l)	8.9
BOD <sub>5</sub>	(mg/l)	3.3
Org.-N	(mg/l)	0.2
NH <sub>3</sub> -N	(ng/l)	<0.02
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	1.1

Flow taken at Peddle Hollow Road

7/13/77                      0.1729 cfs                      Time 11:35

D.O.	(mg/l)	12.9
Water Temp	(°C)	15.0
pH	(SU)	8.4

Flow taken at Bluff Road

7/13/77	0.7323 cfs.	Time 12:08
D.O.	(mg/l)	12.8
Water Temp.	(°C)	14.1
pH	(SU)	8.5

Kieler Lagoon

7/13/77	Time 12:37	
D.O.	(mg/l)	➤20.0
Water Temp.	(°C)	22.0
pH	(SU)	9.6

Spring on Martin Kieler

5/21/80 Time - 11:20

Water Temp.	(°C)	13.9
pH	(SU)	7.2
BOD <sub>6</sub>	(mg/l)	4.0
NH <sub>3</sub> -N	(mg/l)	0.02
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	2.4

Kieler STP

10/27/80 Time - 12:02

Water Temp.	(°C)	4.5
BOD <sub>6</sub>	(mg/l)	19.0
Sol. BOD <sub>6</sub>	(mg/l)	4.3
Lab. pH	(SU)	9.3
S.S.	(mg/l)	90.0
Tot. P	(mg/l)	2.96
Org. N	(mg/l)	9.2
NH <sub>3</sub> -N	(mg/l)	0.02
NO <sub>3</sub> -N	(mg/l)	0.02

Kieler STP

11/6/80 Time - 12:40

BOD <sub>5</sub>	(mg/l)	18.0
Sol. BOD <sub>5</sub>	(mg/l)	2.9
Lab pH	(SU)	9.8
S.S.	(mg/l)	104.0
Org. N	(mg/l)	8.1
NH <sub>3</sub> -N	(mg/l)	0.1
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	0.1

Above Sinnipee Creek Spring Head

11/6/80 Time - 11:50

BOD <sub>5</sub>	(mg/l)	14.0
Sol. BOD <sub>5</sub>	(mg/l)	6.3
Lab pH	(SU)	8.7
S.S.	(mg/l)	56.0
Org. N	(mg/l)	5.4
NH <sub>3</sub> -N	(mg/l)	0.2
NO <sub>2</sub> -N + NO <sub>3</sub> -N	(mg/l)	0.1

Table 1: Macroinvertebrate Data Sinnipee Creek - Bluff Road

4/23/79

Taxa	n	a	nx
DIPTERA			
MUSCIDAE			
<u>Limnophora</u> sp.	1	2	2
SIMULIDAE			
<u>Simulium tuberosum</u>	1	2	2
TRICHOPTERA			
<u>Cheumatopsyche</u> spp.	11	3	33
<u>Chimarra atterrima</u>	2	2	4
<u>Symphitopsyche slossonae</u>	1	2	2
AMPHIPODA			
<u>Gammarus pseudolimneus</u>	2	2	4
ISOPODA			
<u>Asellus intermedius</u>	91	5	455
Total =	109		502
Biotic Index = $\frac{502}{109} = 4.61$			

Table 2: Sinnipee Creek - Bluff Road

10/24/79

Taxa	n	a	nxa
DIPTERA			
CHIRONOMIDAE			
<u>Microtendipes</u> sp.	1	3	3
<u>Polypedilum</u> spp.	2	3	6
<u>Thienemannimyia</u> complex	2	3	6
MUSCIDAE			
<u>Limnophora</u> sp.	1	2	2
EPHEMEROPTERA			
<u>Baetis brunneicolor</u>	2	2	4
<u>Baetis phoebus</u>	13	2	26
<u>Stenacron interpunctatum</u>	1	3	3
TRICHOPTERA			
<u>Cheumatopsyche</u> spp.	32	3	96
<u>Chimarra atterrima</u>	11	2	22
<u>Hydropsyche betteni</u>	1	3	3
<u>Symphitopsyche bifida</u> group	1	3	3
<u>Symphitopsyche riola</u>	2	2	4
<u>Symphitopsyche slossonae</u>	3	2	6
ISOPODA			
<u>Asellus intermedius</u>	53	5	265
Total =	125		449
Biotic Index = $\frac{449}{125}$			3.59

Jamestown S.D. #1  
(Kieler STP)  
Grant County

June 19, 1979

Kieler Creek

The City of Kieler is considering Kieler Creek as an alternate discharge site. Kieler Creek has a  $Q_{710}$  of .24 cfs at the south line of Sec. 3, T. 1 N., R. 2 W. Kieler Creek and Louisburg Creek join in Sec. 15, T. 1 N., R. 2 W. to form the headwaters of the Menominee River.

At the present time Kieler Creek is being severely impacted by heavy organic loadings. This is evidenced by the profuse growth of filamentous algae in the riffles and runs. Also the benthic community is comprised of mostly Isopoda, Asellus intermedius, which is a very tolerant organism. A biological sample taken in April of 1979 above Jimtown Road had a Biotic Index value of 4.88.

Kieler Creek is characterized as a riffle and pool stream with numerous long deep pools. The stream is buffered by mostly pasture, some of which is wooded. Cattle have contributed to bank and pasture erosion which has added to stream siltation. The substrate is one of rock-rubble much of which has been silted over, especially in the pools. Aquatic vegetation is limited mostly to filamentous algae. Because of this heavy growth of filamentous algae, diurnal swings must have a severe impact upon the stream.

During the survey it was noted that an abundance of minnows were present throughout the stream reach. The Menominee River is known to have an abundance of smallmouth bass and Kieler Creek has the potential for a smallmouth bass fishery also. The stream has good morphology which is conducive to a smallmouth bass fishery but water quality seems to be the limiting factor in the expansion of such a fishery.

Recommendations

From the proposed alternate discharge site of the Kieler STP and for the remainder of Kieler Creek, the classification should be continuous fish and aquatic life.

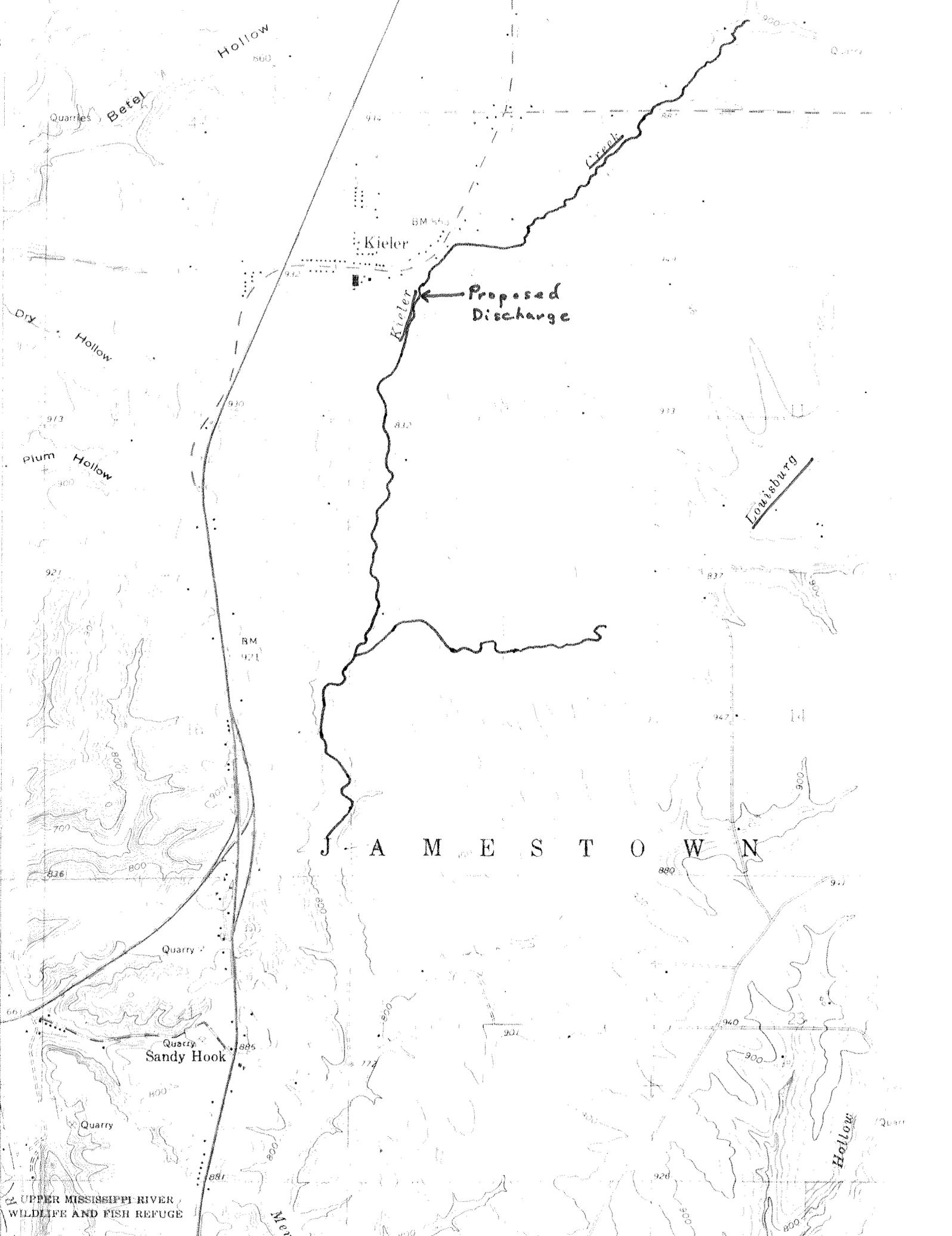
The above recommendations represent a concurrence of opinion of the stream classification team who are as follows:

Dave Lewandowski, District Engineer  
Tom Bainbridge, District Biologist  
Gene Van Dyck, Area Fish Manager  
Roger Schlessler, Environmental Specialist

Respectfully submitted,



Roger Schlessler  
Water Quality Specialist



Hollow

Betel

Quarries

Kieler

Proposed Discharge

Dry Hollow

Plum Hollow

Louisburg

JAMESSTOWN

Sandy Hook

Hollow

UPPER MISSISSIPPI RIVER WILDLIFE AND FISH REFUGE

Kieler Sanitary District #1  
Grant County

July 13, 1977

Sinnipee Creek

Surface area = 3.27 acres, Length = 2.7 miles, Gradient = 59 ft./mile

Kieler Sanitary District discharges from a 2 cell stabilization pond into the headwater area of Sinnipee Creek. Sinnipee Creek is located a mile northwest of Kieler and flows southwest to enter the Mississippi River five miles above the Wisconsin-Illinois border. At the present time this headwater area is dry except for the effluent. The effluent travels for approximately 250 yards before it dissipates into the streambed. The streambed remains dry for approximately  $\frac{1}{2}$  mile beyond . At this point the first major spring is located in the NW  $\frac{1}{4}$ , NE  $\frac{1}{4}$ , Section 4, R2W, T1N, on the Martin Kieler farm. There are numerous small springs entering along the entire length of the stream which provide good water quality. The stream is wide and shallow with a rubble-gravel bottom. Sinnipee Creek provides a limited fishery, mostly in its lower reaches due to the backwash of the Mississippi River.

Recommendations

From the Keiler Lagoon outfall downstream to the spring in the NW  $\frac{1}{4}$ , NE  $\frac{1}{4}$ , Section 4, R2W, T1N, the classification should be noncontinuous marginal surface waters. From this point downstream to Bluff Road Bridge the classification should be continuous surface waters not supporting a balanced aquatic community. From the Bluff Road Bridge and for the remainder of Sinnipee Creek 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  
Tom Bainbridge, District Biologist  
Roger Schlessler, Natural Resources Technician

Respectfully submitted,

  
Thomas Bainbridge  
Stream Classification Coordinator

TB:mlu



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## Kieler

The Kieler Sanitary District discharges to the headwaters of Sinnipee Creek. Sinnipee Creek at the discharge site has no base flow. The flows obtained for the Q<sub>710</sub> value of .12 cfs were taken approximately 1¼ miles below the lagoon outfall where natural stream flow is present. Flow in Sinnipee Creek originates in the NW¼, NE¼, Section 4, R2W, T1N. Most of Sinnipee Creek is buffered by pasture and agricultural land. The stream has a high gradient and is subject to severe bank erosion and flooding. The fishery is very limited due to the wide and shallow nature of the stream. Good habitat is very limited and pools are few in number. Only in the lower reaches is there sufficient flow to support a fishery other than forage fish.

Kieler Sanitary District #1  
Grant County

October 11, 1976

Sinnipee Creek

Surface area = 3.27 acres, Length = 2.7 miles, Gradient = 59 ft./mile.

A moderate gradient, spring-fed stream beginning one mile northwest of Kieler and flowing southwest to enter the Mississippi River five miles above the Wisconsin-Illinois border. Numerous small springs enter along the entire length of the stream and it has a good sand and gravel bottom. The lower reaches are wide and shallow due to water backed up by the Mississippi River. Largemouth bass and panfish provide a limited fishery near the mouth and forage species are common throughout. Carp and other rough fish also inhabit the lower reaches. Muskrats and migratory waterfowl inhabit the 26 acres of timber swamp wetland near the mouth.

Recommendations

From the Kieler Lagoon outfall downstream to Bluff Road Bridge the classification should be continuous surface waters not supporting a balanced aquatic community. From this point and for the remainder of Sinnipee Creek 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  
Tom Bainbridge, District Biologist  
Roger Schlessler, Natural Resources Technician

Respectfully submitted,

*Tom Bainbridge*  
Tom Bainbridge  
Stream Classification Coordinator

TB:cb

*Handwritten notes:*  
Mississippi - 3.4 miles  
Bluff

