

Region SCR County Dodge Report Date 9/1991 Classification LAL/LFF
 Water Body: Dead Creek, Clyman Trib
 Discharger: V. of Clyman 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

Historical Reports in file:

- 9/1991 - Marc Sesing
- 6/10/80 - Tom Bainbridge, et al
- 7/16/75 - Tom Bainbridge

Additional Comments/How to improve report:

- potential of stream limited by low flow, shallow depths & lack of in stream cover
- are there any control lake sources affecting trib?
- for the most part, good report
- check in w/ region on factors limiting class'n.

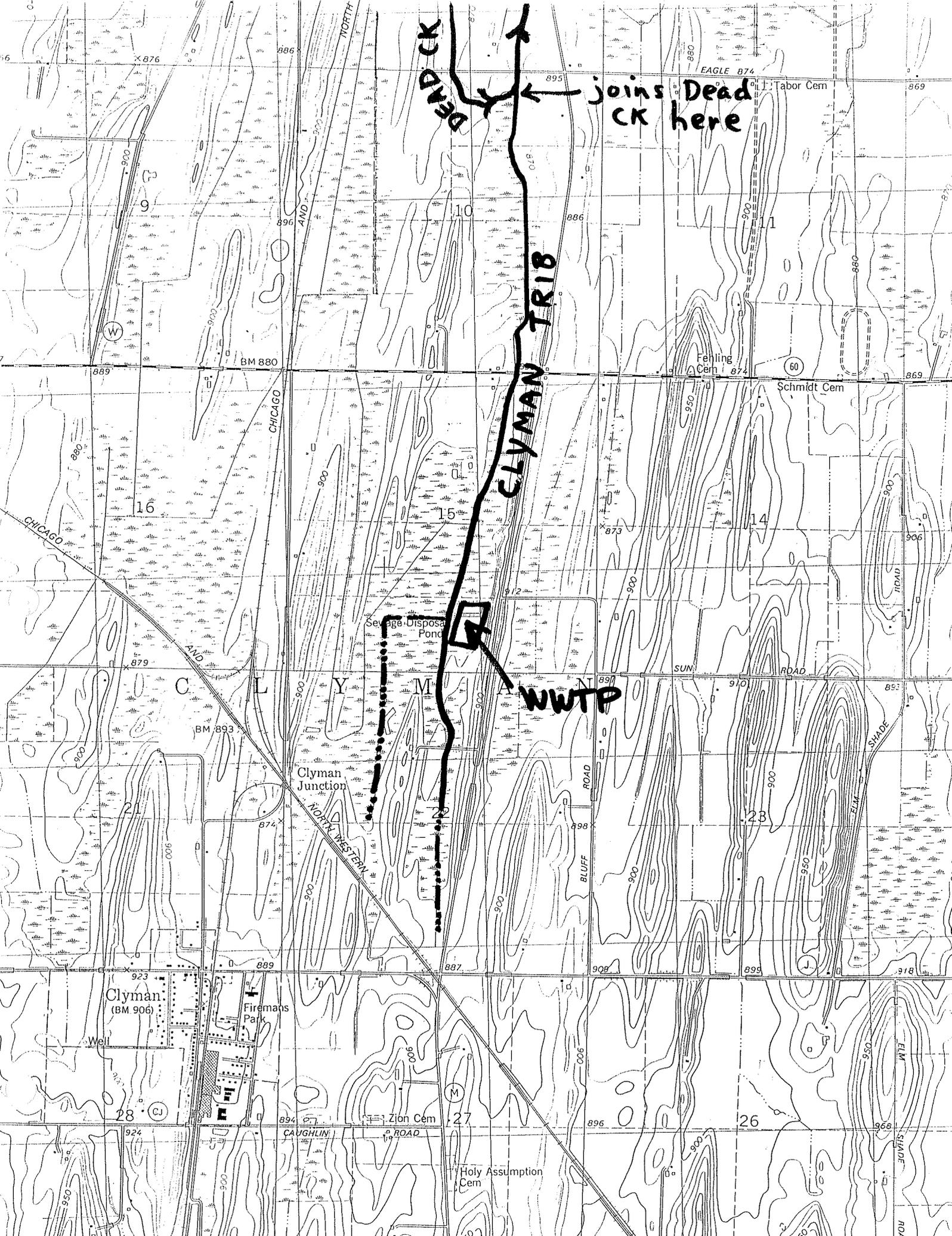
CLYMAN TRIBUTARY TO DEAD CREEK

**TRIENNIAL STANDARDS REVIEW
VILLAGE OF CLYMAN WWTP**

SEPTEMBER 1991

MARK SESING, SOUTHERN DISTRICT

**BUREAU OF WATER RESOURCES MANAGEMENT
WISCONSIN DEPARTMENT OF NATURAL RESOURCES**



DEAD CK

joins Dead CK here

CLYMAN TRIB

NWTP

Clyman (BM 906)

Firemans Park

Zion Cem

Holy Assumption Cem

Tabor Cem

Felling Cem

Schmidt Cem

BM 880

BM 893

Well

CAUGHLIN ROAD

BLUFF ROAD

SUN ROAD

SHADE ROAD

CHICAGO

CHICAGO

AND

NORTH

EAGLE 874

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SUMMARY

The Clyman Tributary to Dead Creek was originally designated as supporting Limited Aquatic Life, LAL(f) (Marg E) with a noncontinuous flow (< 0.01 CFS). After reviewing available information relating to stream habitat, water quality and biology, it is recommended that the stream be upgraded to a Limited Forage Fish Community, LFF(e) with a noncontinuous hydrologic classification. This new classification may result in WPDES permit modification for the WWTP at Clyman.

This evaluation of the Clyman Tributary to Dead Creek was conducted as part of the Triennial Standards Review program. Sites being reviewed are listed in Section NR 104.05, Wis. Adm. Code, and have received a variance from full fish and aquatic life standards for one or more of the following reasons:

- a) The presence of in-place pollutants;
- b) Low natural stream flow;
- c) Natural background conditions; and
- d) Irretrievable cultural alterations.

Recreational uses would be limited to partial body contact only, due to limited depths and substrate qualities.

GENERAL DESCRIPTION

The Clyman Tributary to Dead Creek originates in wetlands typical of south-central Dodge County. The stream is generally shallow and wide, having been ditched for a majority of its length. Widths within the inventoried segment ranged from < 3m to 9m. Average depths were generally below 0.5 m and ranged from 0.2 m to 0.8 m. This tributary zig zags easterly, then flow north to join with the Juneau Branch of Dead Creek at Eagle Road (*see map*). Flows obtained at STH 60 between 1973 and 1976 indicate a 'dry' bed on three occasions. USGS has determined the Q7,10 to be 0.0 CFS (USGS, 1979).

Adjacent land use is largely wetland with some agriculture. The brown "tannic" stain, characteristic of wetland streams, is present. Livestock access or barnyard runoff was not apparent.

STREAM HABITAT, WATER QUALITY, BIOLOGY

Available habitat for fish and aquatic life was generally rated poor. Constraints limiting the use potential were primarily due to substrate quality, lack of in-stream cover, shallow depths, and low flows.

The stream substrate is primarily silt and detritus which precludes colonization by a diverse community of macroinvertebrates. Little or no firm substrate was obvious and embeddedness is very high (100%). Velocity is low, and riffing was not observed. In-stream cover is primarily limited to in-stream aquatic vegetation and riparian cover. Snags, rocks or boulders, tree

roots, logs and other similar habitat structure is lacking. The effects of stream channelization i.e., *shallowness, excessive widths, and low sinuosity* are obvious.

Filamentous algae was the observed predominant in-stream vegetation type observed. Other species of rooted aquatic vegetation, which may have been present during the summer period, were not observed.

Bank stability > 90% in all observed reaches and was due, in part, to the predominantly wetland areas riparian to the stream.

Many forage fish were noted during the survey work. An electroshocking survey conducted on October 17, 1990 documented the presence of an abundant population of central mud minnows and 5-spine (brook) stickleback, both species being tolerant of low-oxygen, low-flow conditions and able to do quite well in the "ditched" habitat present.

MXS:kas

WPSHARE\WR1CLYMN.MXS

Dead Creek, Clyman Tributary, and Rosendale Tributary
 FISH MONITORING
 October 17, 1990
 SESING, M. / MARSHALL, D.

STREAM SEGMENT LOCATION	NUMBER OF FORAGE OR GAMEFISH IDENTIFIED	NOTES	D.O./T°C (location)
Dead Ck, at Shady Lane	brook stickleback, 8 mudminnow, 1	ditched, low quality	5.9/15.8 (at Shady Lane crossing) Dodge County
Dead Ck, below CTH M	brook stickleback, 3 mudminnow, 10+ pumpkinseed (hybrid?), 7 green sunfish, 2 bullhead, 2 fathead minnow, 2	improved habitat qualities	8.1/14.8 (at CTH M x-ing) Dodge County
Clyman tributary to Dead Creek	brook stickleback, 10+ mudminnows 10+	wide, shallow w/ duckweed	3.3/15.8 (at STH 60 x-ing) Dodge County
Rosendale	brook stickleback, 3 mudminnow, 10+ N. redbelly dace, 3 W. suckers, 10+ N. Creek chub, 10+ pearl dace, 10+	Elodea abundant, good habitat for forage	9.8/14.5 (at E. Rosendale Rd.) Fond du Lac Co.

Stream CLYMAN TRIB Reach Location FROM WWTP to Dead CK Reach Score/Rating 221 / POOR
 County DODGE Date _____ Evaluator M. SESING Classification EXISTING, MARG E

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

Column Totals: _____

Column Scores E _____ +G _____ +F _____ +P _____ = 221 = Score

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

Sample ID # 901017-14 Waterbody Name Clymer Trib to Dead Creek
 Y Y M M D D Cnty Field #

r Temp (Celsius) 15.8 Dissolved Oxygen (mg/l) 3.3

Sample Location: X Master Waterbody # X
 1/16 1/4 Sec. Tn., Rng.

Project Name Triennial Review Storet Station # _____

Ave. Stream Width (Ft.) at Site 18 ft. Ave. Stream Depth (Ft.) at Site 1.5

Collector Searcy / Marshall, D Field # _____ Rep 1 Rep 2 Rep 3
 (Last Name, First Initial) Measured Velocity (fps) _____

Sorter _____ Est. Velocity (fps) V. Slow (<-0.2)
 Est. % of sample sorted _____ Slow (0.2-0.5)
 Moderate (0.5-1.5)
 Fast (1.5->)

Taxonomist NA Sampled Habitat: 1. Riffle 2. Run
 Location Description _____ 3. Pool 4. Lake

Sampling Device: 1. D Frame, 2. Artificial Substrate, 3. Surber, 4. Other NA Est. Time Spent Sampling (Min.) _____

Substrate at Site Location (%)
 Bedrock _____ Rubble (2.5 -10.0" dia.) _____ Sand _____ Clay _____
 Boulders (10.0" dia.) _____ Gravel (0.1 - 2.5" dia.) 20 Silt _____ 40 Detritus _____ 40 Muck _____
 Debris/Veg _____

Substrate Sampled (%) (Same as above _____)
 Bedrock _____ Rubble (2.5 - 10.0" dia.) _____ Sand _____ Clay _____
 Boulders (10.0 dia.) _____ Gravel (0.1 - 2.5" dia.) _____ Silt _____ Detritus _____ Muck _____
 Debris/Veg _____

Aquatic Vegetation _____ % of Total Stream Channel at Sample Site

Observed Instream Water Quality Indicators (Perceived WQ: Excellent, Good, Fair, Poor)

	Not Present	Insignificant	Significant	Comments
Turbidity	1	2	3	<i>Wide, shallow covered w/ duckweed and floating algae.</i>
Chlorine or Toxic Scour	1	2	3	
Macrophytes	1	2	3	
Filamentous Algae	1	2	3	
Planktonic Algae	1	2	3	
Slimes	1	2	3	
Iron Bacteria	1	2	3	

Factors Which May Be Affecting Habitat Quality

	Not Present	Insignificant	Significant	Comments
Sludge Deposits	1	2	3	<i>Invertebrate samples not obtained due to lack of habitat</i>
Silt and Sediment	1	2	3	
Channel Ditching	1	2	3	
Down/Up Stream Impoundment	1	2	3	
Low Flows	1	2	3	
Wetlands	1	2	3	

Pollutant Sources

	Not Present	Insignificant	Significant	Comments
Livestock Pasturing	1	2	3	<i>prob. habitat</i>
Barnyard Runoff	1	2	3	
Cropland Runoff	1	2	3	
Drains	1	2	3	
Septic Systems	1	2	3	
Streambank Erosion	1	2	3	
Urban Runoff	1	2	3	
Construction Runoff	1	2	3	
Point Source (Specify Type)	1	2	3	
Other (Specify)	1	2	3	

JUSTIFICATION FOR DEAD CREEK STREAM CLASSIFICATION

JUNE 10, 1980

Physical Description

Dead Creek originates at the southern boundary of the City of Juneau where it receives the flow from the city's storm sewers. Many years ago the upper reach of Dead Creek was ditched and channelled. Due to its low gradient and essentially zero upstream flow, this reach of the stream has little if any assimilative capacity. Approximately one mile below the Juneau STP, the stream bottom consists of grass, slime, silt and organic debris (Appendices D and G). Approximately one-half mile upstream from the CTH "M" bridge the Clyman tributary discharges into Dead Creek. This discharge does not substantially increase the flow in Dead Creek. Below CTH "M" the stream is not ditched, but is best described as a modified stream. Heavy siltation and a low gradient restricts development of a good biotic ecosystem. The stream bottom in this reach consists of basically silt (Appendices D and G). Below STH "115," Dead Creek is extensively bordered by wetlands which have the potential of being spawning areas for northern pike (see attached map).

Current Pollution Problems

The water quality of Dead Creek has been severely impacted by point source discharges (Appendices C, D and E). The Cities of Juneau and Milbrew, Inc., discharge partially treated wastewaters to the creek (Appendices B and F). Dead Creek also receives effluent from the Village of Clyman via the Clyman Tributary (Appendix B). Currently the gross pollution conditions in the stream make spawning below STH "115" impossible.

Recommendations for Dead Creek Classification

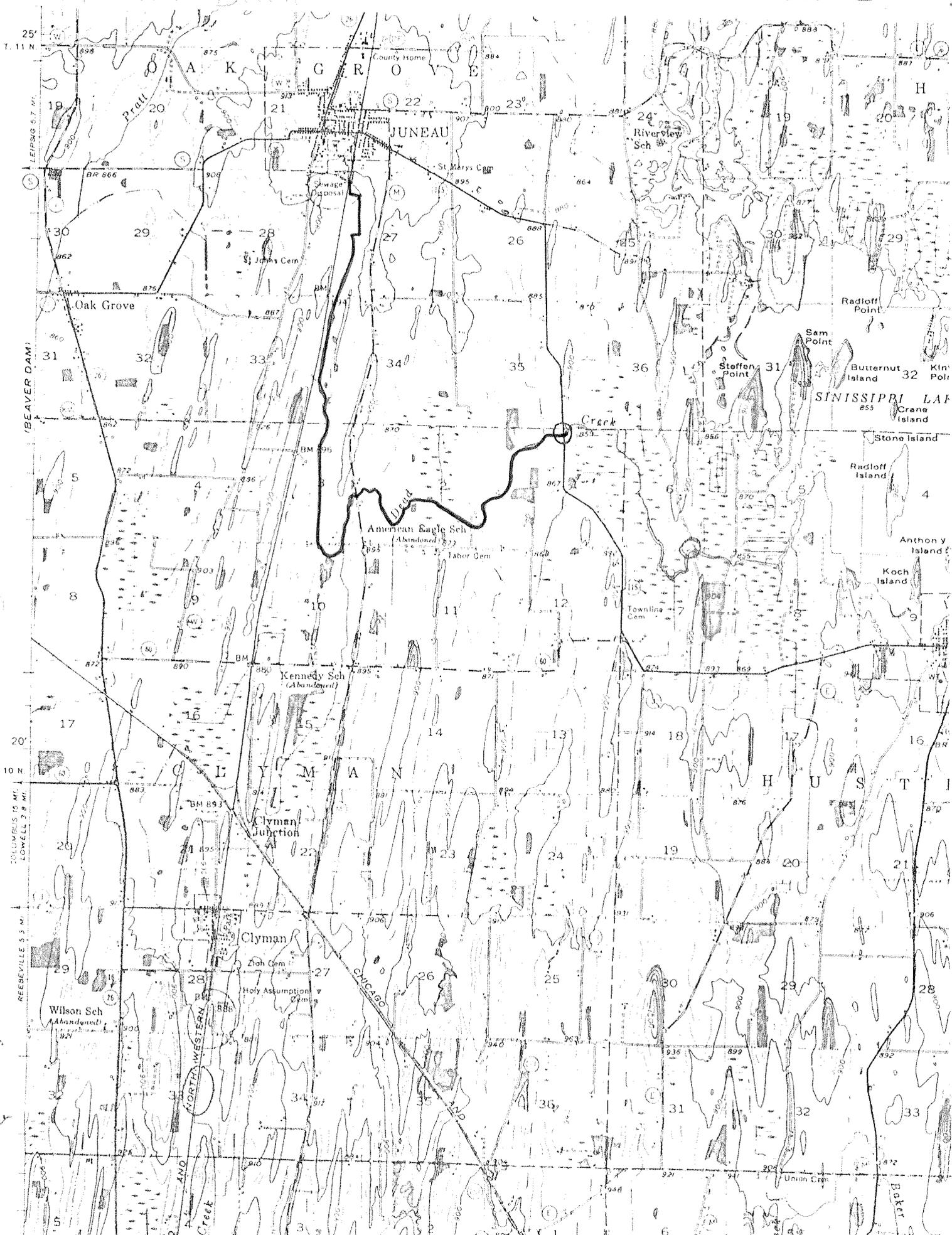
The stream classification for Dead Creek downstream to CTH "M" should remain the same as in the original classification. The fish aquatic life classification should be extended upstream to the STH "115" bridge. The area between the STH "115" bridge has the potential to be a spawning area for northern pike.

The above recommendations represent a concurrence of opinion by the following DNR employees:

Tom Bainbridge, Southern District Biologist
Keith Hutchison, Horicon Area Biologist
Jim Congdon, Horicon Area Fish Manager

High Aquatic Life
Common, Marginal
Littoral Ditch

Dead Creek
at Juneau



Appendix A

Original Stream Classification Report

-

Existing Classification in Water Quality Standards

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Recommended Change in Water Quality Standard Classification

JUNEAU
DODGE COUNTY

July 16, 1975

The Juneau waste water treatment plant presently discharges its waste water into Dead Creek, roughly one mile above the Shady Lane Road Bridge. Milbrew, Incorporated, a processor of sweet whey and brewer's yeast, also discharges its cooling and waste water via an overflow to a ridge and furrow system in this vicinity. The Juneau treatment plant, when funds are available, will relocate building a new treatment facility roughly one-half mile below the Shady Lane Road Bridge. The 7Q10 of Dead Creek in this vicinity is less than .01 cfs.

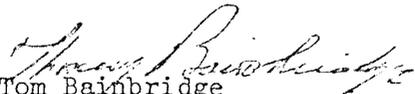
Dead Creek flows south, approximately one mile before crossing Shady Lane Road Bridge, continues to flow in a southerly direction for one mile before crossing Eagle Road. At this point the stream bends, picking up the Clyman Tributary, which carries the overflow wastewater from the Clyman lagoon. Dead Creek then recrosses Eagle Road, flowing northerly roughly one-half mile before crossing County Trunk Hwy. "M". This entire stretch of stream has been ditched and straightened and is composed primarily of waste water. Dead Creek's uniform channel and low gradient does not aid in the assimilation of wastes. At County Trunk Hwy. "M" to St. Helena Road, approximately $4\frac{1}{2}$ stream miles, Dead Creek could best be described as a modified stream. This area is intensively farmed and none point sources of pollution could well pose a problem. Above the St. Helena Road Bridge there exists a large marsh area, which should not be subjected to excess nutrient loadings. This area serves as a spawning grounds for fish as well as upland game birds and waterfowl. From the St. Helena Road Bridge, Dead Creek flows approximately $1\frac{1}{2}$ stream miles before entering Lake Sinissippi.

RECOMMENDATIONS

Dead Creek should be classified as an effluent ditch downstream to County Trunk Hwy. "M". From County Trunk Hwy. "M" to the St. Helena Road Bridge, the classification should be continuous agriculture. From the St. Helena Road Bridge to its confluence with Lake Sinissippi, Dead Creek should be classified as continuous fish and aquatic life.

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

Bob Weber, District Engineer; Jim Congdon, Area Fish Manager; Tom Bainbridge, Stream Classification Coordinator.


Tom Bainbridge
Stream Classification Coordinator

TB:lg

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:

(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)
1. Goose Lake Tributary (Arlington)	Tributary upstream from Goose Lake	Noncontinuous	II	Effluent limitations to be determined
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

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
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
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	
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
Dodge Branch (Dodgeville)	Upstream from a point approximately 3,500 feet downstream from STH "191"	Noncontinuous	I	A
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
Gregory Branch (Fennimore)	Upstream from STH "61"	Continuous	I	A
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
Big Spring Branch (Highland)	Upstream from the North line of Sec. 19, T7N, R1E	Noncontinuous	I	A
Pedler Creek (Iowa Co. Nursing Home)	From the Iowa Co. Nursing Home STP downstream to the confluence with an unnamed tributary, SE¼, Sec. 34, T6N, R2E	Noncontinuous	I	A
Tributary - Wildcat Creek (Iron Ridge)	From the Iron Ridge STP downstream to Wildcat Creek	Noncontinuous	II	B
Tributary & Rock River Tributary (Ixonia San. Dist.)	From the Ixonia San. Dist. STP downstream to the juncture with the Rock River Tributary	Noncontinuous	II	B
Tributary - Menominee River (Jamestown San. Dist. #2)	Rock River Tributary from above tributary to confluence with Rock River	Continuous	II	NA
Dead Creek (Juneau)	From Jamestown San. Dist. #2 STP to the Menominee River	Diffused surface water	II	B
Sinnipee Creek (Kieler San. Dist. #1)	Upstream from CTH "M"	Effluent ditch	II	B
	From CHT "M" to St. Helena Rd.	Continuous	I	NA
Rock Creek (Lake Mills)	From Kieler lagoon outfall to Bluff Road	Continuous	I	A
	From the Lake Mills STP downstream to CTH "V"	Noncontinuous	I	A
Tributary - Pigeon Creek (Lancaster)	From CTH "V" to Harper's Mill Pond	Continuous	I	NA
	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	
Tributary - Baker Creek (Lebanon San. Dist.)	From Lebanon STP downstream to Baker Creek	Noncontinuous	II	B
Little Platte River (Livingston)	From Livingston STP downstream to New California Road	Noncontinuous	I	A

Recommended Change in Water Quality
Standard Classification

It has been recommended that the stream classification in Chapter NR 104,
Page 39, for Juneau be changed to read as follows:

Dead Creek (Juneau)	Upstream from CTH "M" From CTH "M" to STH "115"	Effluent Ditch II Continuous	B I NA
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Appendix B
Municipal and Industrial Point Source Information
From Rock River 208 Plan

The effluent loadings for 1980 assume that the 1976 average effluent concentrations will be maintained.

Wastewater Related Characteristics for Projected Populations

<u>Year</u>	<u>1976</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
Population	953	1076	1214	1363	1505	1656
Flow (mgd)	.095	.108	.121	.136	.150	.166
Flow (cfs)	.147	.166	.188	.211	.233	.256
BOD ₅ (lb/day), in	162	183	206	232	256	282
BOD ₅ (lb/day), out	26	30	30	34	38	41
BOD ₅ (mg/l), out	33	33	30	30	30	30
SS (lb/day), in	200	226	255	286	316	348
SS (lb/day), out	22	25	30	34	38	41
SS (mg/l), out	28	28	30	30	30	30
Phosphorus (lb/day), in & out	8	9	10	11	12	14
Nitrogen (lb/day), in & out	31	35	40	44	49	54

Several comments should be made about the above table. First note that daily flows may be substantially greater due to excessive infiltration/inflow and unrecognized cooling or industrial discharges (low influent concentrations here suggest excessive clear water problems may exist). Also, if industrial discharges do exist, influent parameter loadings should be adjusted accordingly. In order to meet effluent limits in the year 2000, a BOD₅ removal level of 35 percent and suspended solids removal level of 88 percent must be achieved. It is assumed that the nitrogen and phosphorus levels in the effluent will remain essentially the same as those in the raw wastewater.

V. Municipal Waste Treatment Needs

The present system is not adequate to meet WPDES permit requirements, and the system is subject to excessive infiltration inflow (3). The sewer system needs rehabilitation to eliminate excessive clear-water, and the treatment plant needs expansion by June 30, 1982, the compliance date deadline for completing construction.

VI. Facilities Planning

Johnson Creek has a priority sequence number of 49 on the 1980 State of Wisconsin Department of Natural Resources Federal Project Priority List. The community has received step one - facilities planning grant authorization.

VII. Industries Discharging to Surface Waters

No industries report surface water discharges near Johnson Creek.

References

(1) Wisconsin Department of Natural Resources, Division of Environmental Standards. Upper Rock River Drainage Basin Report, Madison, Wisconsin, 1976.

(2) Infiltration - Inflow Analysis, Johnson Creek, Strand and Associates, Inc. 1978.

JUNEAU

I. General Information

The City of Juneau is located in central Dodge County. Its population was estimated to be 2,178 in 1976 by the Wisconsin Department of Administration and is projected by the community's consulting engineers to increase to 2,800 in the year 2000. Manufacturing and service related industries employed approximately 58 percent of the community's work force in 1970 according to U.S. census data.

The Juneau sewage treatment facility discharges its effluent into Dead Creek (Milbrew, Inc., also discharges in this vicinity). Dead Creek flows south and then east, picking up the Clyman Tributary which carries wastewater from the Clyman treatment facility. Much of the stream has been ditched and straightened and the flow is composed primarily of wastewater. The stream flows through agricultural lands and a large marsh before entering Lake Sinissippi. Dead Creek is classified as a noncontinuous marginal surface water. The treatment facility must meet effluent limits for a discharge to marginal surface waters.

Dead Creek has been described as being an organically polluted stream contributing heavy BOD loadings to Lake Sinissippi and the Rock River(1).

II. Performance of Wastewater Treatment Facility

The wastewater treatment facility was able to meet its effluent limits for BOD_5 for 11 of 12 months and for suspended solids for 12 of 12 months in 1976. Effluent limits for 1976 were 40 mg/l of BOD_5 and 30 mg/l of suspended solids on a monthly average basis.

III. Wastewater Treatment Facility Data

Facility Information

Treatment Type: Activated sludge with trickling filters
 Date Facility Constructed: mid 1940's
 Certified Operators: Grade 4 (one), Grade 2 (one), Grade 1 (one)
 Receiving Waters: Dead Creek
 $Q_{7,10}$ of Receiving Waters: 0 cfs (2)

Permit Information

WPDES Permit Number: WI-0021474-2
 Date Issued: October 12, 1979
 Expiration Date: August 31, 1981
 Existing Permit Effluent Limitations¹: 40 mg/l BOD_5 (monthly average)
 30 mg/l SS (monthly average)

¹In addition, the pH must be maintained between 6.0 and 9.0 (daily minimum and maximum).

Performance Information for January to December, 1976

Parameter	Average Value	Design Value	No. of Months Design Exceeded ²	Tentative 1983 Effluent Limit	No. of Months 1983 Exceeded ²
Flow	.225 mgd	.26 mgd	3/12	--	--
BOD_5 , in	477 lb/day	1400 lb/day	0/12	--	--
BOD_5 , out	21 mg/l	--	--	20 mg/l	5/12
SS, out	8 mg/l	--	--	20 mg/l	0/12

²The fraction 3/12 means that the limit or design value was exceeded 3 out of 12 months.

Industries Discharging to Municipal Treatment Facility

The present system receives no reported industrial wastes. It does receive sanitary wastes from commercial and industrial establishments in the community.

The treatment facility proposed in the facilities plan will treat process wastes from Milbrew, Inc. These strong wastes will be pretreated by Milbrew, Inc., prior to discharge to the municipal system. In the year 2000 the proposed Milbrew, Inc., waste discharge will contribute nearly one-half of the flow, more than one-half of the BOD_5 , and more than one-third of the suspended solids reaching the treatment facility(3).

IV. Wasteload Projections

Wasteload projections have been calculated for the Juneau treatment facility based on the following information: a) population projections from the facilities plan (3), b) WPDES permit self-monitoring data, c) the assumption that there will be no industrial contribution to the plant other than a .27 mgd flow from Milbrew, Inc. (700 lb/day BOD_5 , 340 lb/day SS, estimated 32 lb/day phosphorus, estimated 46 lb/day nitrogen beginning before 1980), d) year 2000 influent flow, BOD_5 , SS from facility plan, e) the assumption that an infiltration/inflow contribution of 0.06 mgd (3) will be constant from 1980 through the year 2000, f) the assumption that future influent per capita loadings for flow, BOD_5 , SS, phosphorus, and nitrogen will be 100 gpd, .17 lb/day, .21 lb/day, .008 lb/day and .033 lb/day, respectively. Effluent loadings for parameters in 1980 and beyond are based on the limits set for a discharge to a marginal surface water as specified in NR 104.02(3)(b) of the Wisconsin Administrative Code.

Wastewater Related Characteristics for Projected Populations

<u>Year</u>	<u>1976</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
Population	2178	2330	2455	2580	2690	2800
Flow (mgd)	.225	.563	.576	.588	.599	.630
Flow (cfs)	.348	.871	.891	.910	.927	.975
BOD ₅ (lb/day), in	477	1096	1117	1139	1157	1210
BOD ₅ (lb/day), out	39	94	96	98	100	105
BOD ₅ (mg/l), out	21	20	20	20	20	20
SS (lb/day), in	319	829	855	882	905	940
SS (lb/day), out	15	94	96	98	100	105
SS (mg/l), out	8	20	20	20	20	20
Phosphorus (lb/day) in & out	17	50	51	52	53	54
Nitrogen (lb/day) in & out	72	123	127	131	135	139

In order to meet the new limits, a BOD₅ removal level of 91 percent and suspended solids removal level of 89 percent must be achieved. It is assumed that the nitrogen and phosphorus levels in the effluent will remain essentially the same as those in the raw wastewater.

V. Municipal Waste Treatment Needs

The present system is hydraulically overloaded. It will be necessary to expand and upgrade or replace the plant in order to meet the proposed effluent limits. Sewer rehabilitation will be necessary to reduce infiltration/inflow. The community is actively engaged in facilities planning. August 31, 1981 is the compliance deadline date for meeting effluent requirements.

VI. Facilities Planning

Juneau has a priority sequence number of 25 on the 1980 State of Wisconsin Department of Natural Resources Federal Project Priority List. According to the facilities plan (3), approximately \$2,385,000 will be required to build a new joint treatment facility for Juneau and Milbrew, Inc. This does not include land costs, interceptor sewer construction costs, sewer rehabilitation costs, or planning and study costs.

The community's consulting engineer, Donohue and Associates, Inc., submitted the infiltration/inflow report in 1974, the sewer system evaluation survey in 1977 and the facilities plan in 1977. In 1977, the community applied for a step 2 grant to prepare plans and specifications.

VII. Industries Discharging to Surface Waters

Two industries have been permitted to discharge to Dead Creek. Pauly Cheese Company has a non-contact cooling water discharge, and Milbrew, Inc., also has a cooling water discharge. In the past, Milbrew pretreated its strong process wastes through a series of lagoons and discharged to a ridge and furrow system which overflowed into Dead Creek. In 1977, the company intended to divert its process wastewaters to a spray irrigation system until the proposed joint Juneau-Milbrew treatment facility could become operational. As of September, 1977, legal delays had prevented the operation of the proposed spray irrigation system and Milbrew, Inc., discharged its strong process wastewater into Dead Creek (in violation of their WPDES permit).

References

(1) Wisconsin Department of Natural Resources, Division of Environmental Standards. Upper Rock River Drainage Basin Reports, Madison, Wisconsin, 1976.

(2) Low-Flow Characteristics of Wisconsin Streams At Sewage Treatment Plants. U. S. Geological Survey, March, 1979.

(3) Facilities Plan for Wastewater Treatment Works and Interceptor Sewer - Juneau, Wisconsin, Donohue & Associates, Inc. 1977.

LAKE MILLS

I. General Information

The City of Lake Mills is located east of Rock Lake in northwestern Jefferson County. Its population was estimated to be 3889 in 1976 by the Wisconsin Department of Administration and is projected by the task force to increase to 6036 in the year 2000. Manufacturing, trade and service related industries employed approximately 75 percent of the community's work force in 1970 according to U.S. census data.

INDUSTRIAL DISCHARGER SUMMARY

Facility: Milbrew
 Location: Juneau

SIC Code: 2099
 County: Dodge

<u>Production Seasons</u>	<u>Operating Schedule</u>	<u>Discharges To:</u>	<u>Outfalls</u>
Jan-Mar: 20%	24 Hours/Day	a. Dead Creek	1
Apr-Jun: 30%	7 Days/Week		
Jul-Sep: 30%	350 Days/Year		
Oct-Dec: 20%			

WPOES Permit No. WI-0002534

Date Issued: 12-27-74
 Date Expires: 12-31-78

Permit Requirements:

<u>Outfall</u>	<u>Parameter</u>	<u>Daily Maximum</u>
3 & 4	BOD ₅	300 mg/l

NOTE: Outfall 3 is to spray irrigation field

Outfall 4 is to storage lagoon

Effluent Characteristics at "Full Production" discharged to¹:

<u>Parameter²</u>	<u>Municipal STP</u>	<u>Land Disposal</u>	<u>Surface Waters</u>
Flow (MGD)			0.189/.071
Process			0.97/.453
Cooling			
Sanitary			
BOD ₅			6453/1366
SS			1761/342
P			160
Temp. (F ^o)			89 ^o /81 ^o
Oils, Fat & Grease			0
Heat (10 ⁶ BTU/day)			98.6
Nitrate-N			.86
N (Kjeldahl)			230
Sulfate			412
Chloride			1937
Chlorine			0
pH			5.6-8.6
Zinc			0

¹The notation 1761/342 indicates maximum/average values

²Units are pounds/day unless noted otherwise

V. Municipal Waste Treatment Needs

The present system is hydraulically and organically overloaded and will require expansion and upgrading to meet the more stringent effluent limits. The WPOES permit Compliance Schedule requires completion of construction of improvements to the treatment facility by December 31, 1981. Also, sewer system rehabilitation will be necessary to reduce excessive infiltration/inflow. The community is presently engaged in facilities planning.

VI. Facilities Planning

Clinton has a priority sequence number of 29 on the 1980 State of Wisconsin Department of Natural Resources Federal Project Priority List. According to the 1976 Update of the U.S. EPA Needs Survey, approximately \$126,000 will be required to update the wastewater treatment facility to meet the more stringent effluent limits and \$446,000 will be needed for sewer system rehabilitation. The facility plan is expected to be approved by DNR in November 1979.

VII. Industries Discharging to Surface Waters

There are no industries reporting surface water discharges near Clinton.

Resources

(1) Wisconsin Department of Natural Resources, Division of Environmental Standards. Lower Rock River Pollution Investigation Survey, Madison, Wisconsin, 1971.

(2) Low-Flow Characteristics of Wisconsin Streams At Sewage Treatment Plants, U.S. Geological Survey, March, 1979.

(3) Village of Clinton Inflow and Infiltration Analysis, R. H. Batterman & Company, Incorporated, 1976.

CLYMAN

I. General Information

The Village of Clyman is located in south central Dodge County. Its population was estimated to be 330 in 1976 by the Wisconsin Department of Administration and is projected to increase to 944 in the year 2000. Manufacturing related industries employed approximately 69 percent of the community's work force in 1970 according to U.S. census data.

The Clyman sewage treatment facility discharges its effluent into a tributary of Dead Creek which flows into Lake Sinissippi on the Rock River. The Dead Creek tributary is an intermittent stream which flows out of a marsh into an agricultural area. The tributary is classified as a noncontinuous marginal surface water. The treatment facility must meet effluent limits for a discharge to a marginal surface water.

In May, July and October, 1973, dissolved oxygen levels below 2 mg/l were measured in the stream at a point below the treatment facility outfall (1). This means that dissolved oxygen standards were being violated in that reach of the stream at that time.

II. Performance of Wastewater Treatment Facility

The wastewater treatment facility was able to meet its effluent limits for BOD₅ and suspended solids (SS) for 12 of 12 months in 1976, but experienced high flows during wet weather and violated the pH effluent limit during July through October. Effluent limits for 1976 were 30 mg/l of BOD₅ and 30 mg/l of suspended solids on a monthly average basis.

III. Wastewater Treatment Facility Data

Facility Information

Treatment Type: 2 cell stabilization ponds
 Date Facility Constructed: 1962
 Certified Operators: Grade 1 (one)
 Receiving Waters: Dead Creek tributary
 Q₇, 10 of Receiving Waters: 0.0 cfs (2)

Permit Information

WPOES Permit Number: WI-0020702
 Date Issued: October 6, 1977
 Expiration Date: June 30, 1982
 Effluent Limitations¹: 20 mg/l BOD₅ (monthly average)
 20 mg/l SS (monthly average)
 4 mg/l Dissolved oxygen (minimum)

¹In addition, the pH must be maintained between 6.0 and 9.0 (daily minimum and maximum).

Performance Information for January to December, 1976

Parameter	Average Value	Design Value	No. of Months Design Exceeded ³	Tentative 1983 Effluent Limit	No. of Months 1983 Exceeded ³
Flow	.018 mgd ²	.050 mgd	0/12	--	--
BOD ₅ , in	29 lb/day ²	85 lb/day	0/12	--	--
BOD ₅ , out	6 mg/l	--	--	20 mg/l	0/12
SS, out	4 mg/l	--	--	20 mg/l	0/12

²The WPODES self-monitoring influent data is questionable. Later in this report, standard per capita values will be used for computations and projections.

³The fraction 0/12 means that the limit or design value was exceeded 0 out of 12 months.

Industries Discharging to Municipal Treatment Facility

The treatment facility receives no industrial wastes. It may, however, receive sanitary wastes from commercial and industrial establishments in the community.

IV. Wasteload Projections

Wasteload projections have been calculated for the treatment facility based on the following information: 1) population projections from submitted reports, b) WPODES self-monitoring data, c) the assumption that there will be no significant industrial contributions to the plant, d) standard per capita influent contributions of .17 lb/day BOD₅, .21 lb/day suspended solids (SS), .033 lb/day nitrogen and .008 lb/day phosphorus will be used for present and future influent loading calculations since the validity of the 1976 WPODES self-monitoring data is questionable, e) the assumption that flow contributions will be 100 gpcd. Effluent loadings for parameters in 1985 and beyond are based on the limits set for a discharge to a marginal surface water as specified in NR 104.02(3)(b) of the Wisconsin Administrative Code. The effluent loadings for 1980 assume that the 1976 average effluent concentrations will be maintained.

Wastewater Related Characteristics for Projected Populations

Year	1976	1980	1985	1990	1995	2000
Population	330	432	560	688	816	944
Flow (mgd)	.033	.043	.056	.069	.082	.094
Flow (cfs)	.051	.066	.087	.107	.127	.145
BOD ₅ (lb/day), in	56	73	95	117	139	160
BOD ₅ (lb/day), out	2	2	9	12	14	16
BOD ₅ (mg/l), out	6	6	20	20	20	20
SS (lb/day), in	69	90	117	144	171	198
SS (lb/day), out	1	1	9	12	14	16
SS (mg/l), out	4	4	20	20	20	20
Phosphorus (lb/day) in & out	3	3	4	6	7	8
Nitrogen (lb/day) in & out	11	14	19	23	27	31

Generally the above table indicates that all parameter loadings will increase despite the more stringent effluent limits in effect. Also, prior to 1985, the design capacity of the treatment facility will be exceeded. In order to meet the new limits, a BOD₅ removal level of 90 percent and a suspended solids removal level of 92 percent must be achieved. It is assumed that the nitrogen and phosphorus levels in the effluent will remain essentially the same as those in the raw wastewater.

V. Municipal Waste Treatment Needs

The present system appears to be providing adequate BOD₅ and suspended solids removal. However, the present monitoring of flow and influent BOD₅ and suspended solids provides questionable data and may require improvement. Also, high flows recorded during wet weather periods suggest an infiltration/inflow problem may exist. Prior to 1985, expansion and upgrading of the treatment facility will be necessary if the projected population growth occurs.

VI. Facilities Planning

Clyman is not listed on the 1980 State of Wisconsin Department of Natural Resources Federal Project Priority List. The community is not currently engaged in facilities planning.

VII. Industries Discharging to Surface Waters

Aunt Nellie's Foods, Inc., has two WPDES permits. One permit is for a discharge to Clyman Creek. The other is for a discharge to a land disposal system. A summary for this industry is presented in Appendix B.

References

(1) Wisconsin Department of Natural Resources, Division of Environmental Standards. Upper Rock River Drainage Basin Report, Madison, Wisconsin, 1976.

(2) Low-Flow Characteristics of Wisconsin Streams At Sewage Treatment Plants. U.S. Geological Survey, March, 1979.

COLUMBUS

I. General Information

The City of Columbus is located on USH 151 in southeastern Columbia County. The population of Columbus was estimated to be 4068 in 1976 by the Department of Administration and is projected to increase to 5400 in the year 2000(1). According to 1970 census data, 20 percent of the labor force was employed in manufacturing trades and 54 percent was employed in wholesale, retail, or service related occupations.

The Columbus wastewater treatment facility discharges its effluent to the Crawfish River. The river is classified as continuous fish and aquatic life. In a recent report, the river was described as being fully recovered from the organic loading of the Columbus treatment facility 1.7 miles below the treatment plant outfall (2). However, the report cautioned that advanced treatment levels would be imposed in the future due to the extreme low flow characteristics of the receiving stream.

One industry at Columbus has been issued a discharge permit. Stokely-Van Camp, Inc., discharges treated process wastewaters to a drainage ditch to the North Branch Crawfish River and cooling waters to the North Branch Crawfish River. The company is in the process of investigating the feasibility of discharging directly to the Crawfish River (3). (Stokely-Van Camp, Inc., suspended operations in 1978.)

II. Performance of Wastewater Treatment Facility

The wastewater treatment facility was able to meet its effluent limits for BOD₅ for 3 of 12 months and for suspended solids (SS) for 5 of 12 months in 1976. Effluent limits for BOD₅ and suspended solids concentrations for 1976 were 40 mg/l each on a monthly average basis. The treatment facility has been described by the community's consulting engineer as being organically overloaded and suffering from a clear water problem. A clear water removal program has been underway in the city since 1969. The program has achieved some reduction in flows thus far.

III. Wastewater Treatment Facility Data

Facility Information

Treatment Type: Trickling filter
 Sludge Treatment: Anaerobic digestion prior to wet hauling
 Date Facility Constructed: 1954 with chlorination added in 1971
 Certified Operators: Grade 3 (one), Grade 2 (one), Grade 1 (one)
 Receiving Waters: Crawfish River
 Q_{7, 10} of Receiving Waters: 2.0 cfs (4)

Permit Information

WPDES Permit Number: WI-0021008-2
 Date Issued: November 30, 1977
 Expiration Date: June 30, 1982
 Existing Permit Effluent Limitations¹: 60 mg/l BOD₅ (monthly average)
 60 mg/l SS (monthly average)

¹In addition, the pH must be maintained between 6.0 and 9.0 (daily minimum and maximum).

Appendix C

Description of Water Quality From Rock River 208 Plan

Milbrew, Inc., a whey and brewer's yeast processing facility, currently has three separate wastewater discharges. Milbrew discharges approximately 0.382 MGD of noncontact cooling waters and evaporator condensate to Dead Creek. Approximately 0.2 MGD of process wastewaters are discharged from a system of lagoons designed to treat these wastewaters. In the past this discharge, which had very high levels of BOD₅, was discharged to Dead Creek. Currently it is applied to a land disposal site by spray irrigation. However, when inspected on September, 1977, Milbrew, Inc. was discharging wastewater from the lagoons directly into Dead Creek in violation of their WPDES permit. This discharge contained 585 mg/l BOD₅, 192 mg/l suspended solids, and 188 mg/l ammonia. These values all represent extremely high levels of pollutants for discharge to surface waters.

Dead Creek was sampled three times in 1973 by the DNR at site C56, located approximately 0.5 mile below both the City of Juneau and Milbrew wastewater treatment facilities. This sampling revealed that Dead Creek was seriously degraded at this point. All samples showed violations of dissolved oxygen standards. Indeed, the stream was entirely anoxic on one sample date - June 7, 1973. All samples taken were below 13% saturation level for dissolved oxygen. BOD₅ levels were occasionally excessive. The highest BOD₅ level sampled was 570 mg/l. Fecal coliforms were consistently excessive. Counts ranged from 2,100 to 40,000 MFFCC/100 ml. A biological sample taken at this site in December, 1973, was dominated by organisms indicative of polluted conditions. The riverbed was partly covered with organic debris and sewage slime growths. The amount of solids suspended in the stream was so great that the water was gray. Thirteen nutrient level samples were taken at this site by the EPA between September, 1972 and August, 1973. Inorganic nitrogen was excessive in all but two of the samples. Concentrations ranged from 0.179 to 7.02 mg/l. In the two samples where inorganic nitrogen was not excessive, very high levels of organic nitrogen were found. Total phosphorus concentrations were all excessive. Values ranged from 0.68 to 10.00 mg/l. Obviously Dead Creek was grossly polluted at site C56 at the time of sampling. The primary source of this pollution was the effluent from the Milbrew, Inc. facility, although the Juneau wastewater treatment facility contributed to the problem.

A biological sample was taken in 1973 at site B21 which is located 2.7 miles below the last sample point. This sampling also showed polluted conditions. Sludge deposits, sewage slime growth, and large amounts of suspended solids were found in the stream. A maximum BOD₅ of 73 mg/l was measured in the three samples taken at this site (C57).

Dead Creek receives the flow of the Clyman tributary shortly below the last sampling site. This tributary has poor water quality (as was described in the Clyman tributary write-up). A biological sample was taken on Dead Creek approximately 0.3 mile below the mouth of this tributary in 1973 (site B22). This sampling showed that the stream was also polluted at this point. Sewage slime growths were present here too. Shortly below the biological sampling site, a second site (C58) was sampled for chemical parameters. Dissolved oxygen levels violated stream standards in two out of three samples taken here. The concentrations of dissolved oxygen ranged from 0.8 to 3.9 mg/l, or from 9 to 42% saturation. BOD₅ levels found in the stream reached a high of 74 mg/l. Fecal coliforms were consistently excessive and ranged from 2,800 to 26,000 MFFCC/100 ml. One sample was analyzed for nutrient levels. The concentration of inorganic nitrogen in the single sample was excessive (1.46 mg/l) and the concentration of total phosphorus was extremely excessive (15.0 mg/l).

Dead Creek was sampled in its lower reaches at site C59 around 0.8 mile above where it discharges into Lake Sinissippi. The three samples taken at this site in 1973 showed that the stream had started to recover from upstream conditions. However, two of the three samples still violated the minimum dissolved oxygen standard of 5.0 mg/l for this stretch of the stream. Dissolved oxygen ranged from 1.2 to 6.5 mg/l, or from 14 to 70% saturation. Fecal coliform counts were excessive in only one of the three samples and BOD₅ levels in the stream were moderate ranging from 5.3 to 9.0 mg/l. Thirteen nutrient samples were taken by the EPA at this site between September, 1972, and August, 1973. Inorganic nitrogen levels were reduced from those found in upstream locations but, nevertheless, were excessive in 7 of the 13 samples. Inorganic nitrogen ranged from 0.05 to 5.23 mg/l in these samples. Total phosphorus levels also were reduced but were still consistently excessive. Total phosphorus ranged from 0.25 to 2.60 mg/l.

The water quality data shows that Dead Creek was severely degraded along its entire length but was most polluted in its upper reaches. Dissolved oxygen standards were violated at least once at all sites sampled. Completely anoxic conditions were recorded on June 7, 1973, around one mile below the City of Juneau. BOD₅ levels were excessive in all but the lowest reach of the stream. Excessive fecal coliform counts, inorganic nitrogen concentrations, and total phosphorus concentrations were noted at all sample sites. At times, total phosphorus reached extremely excessive levels. The maximum recorded concentration was 15.0 mg/l. Two point sources are primarily responsible for the grossly polluted condition of Dead Creek - the Juneau wastewater treatment facility, and Milbrew, Inc., in Juneau. Milbrew, Inc., is the most significant source of pollution to the stream. Wastewaters from this facility entering the creek have had very high organic loadings. The City of Juneau and Milbrew, Inc. are currently planning to build a joint wastewater treatment facility which would reduce the pollutant loadings to Dead Creek. This facility is desperately needed if water quality in Dead Creek is to improve.

3.3.3 Sinissippi Lake - Rock River Subbasin

The Sinissippi Lake - Rock River Subbasin is a predominantly agricultural watershed located south of Horicon Marsh in Dodge and Jefferson counties. The subbasin occupies part of a geological lowland which stretches from Beloit to Lake Winnebago to Green Bay. The region is covered with glacial deposits which lie on the Sinipee Group Limestone formations. The northeast region of the subbasin, near Iron Ridge, is generally hilly and higher than the rest of the subbasin. West of the Rock River, drumlins oriented in a north-south direction are very numerous. The dominant hydrologic features of this subbasin are a slow and meandering stretch of the Rock River and the shallow, fertile impoundment of the Rock - Sinissippi Lake. No natural lakes of significant size occur in this subbasin. This subbasin has a total watershed area of 235.7 mi².

NOTE: This section covers only the tributaries of the Rock River within the Sinissippi Lake - Rock River Subbasin. The water quality of the Rock River itself is discussed under the section of this report entitled "Rock River - Main Stem".

3.3.3.1 Clyman Tributary to Dead Creek

Water Quality Classification: Marginal Surface Waters

The Clyman tributary is a small, intermittent stream which originates near the Village of Clyman in Dodge County. It flows through several wetland areas situated between drumlins on its way to Dead Creek. The tributary has been classified to meet water quality standards for marginal surface waters. The Clyman tributary receives the effluent of the Clyman wastewater treatment facility near its headwaters. This facility discharged an average loading of 2 lbs/day BOD₅ and 1 lb/day suspended solids to the Clyman tributary in 1976 based upon an average flow of 0.033 MGD. Samples of the treatment plant's effluent taken by the DNR in 1973-74 showed occasionally excessive levels of fecal coliforms with counts reaching as high as 36,000 MFFCC/100 ml. There are no other point source discharges to the tributary.

The Clyman tributary was sampled in 1973 at a point approximately 0.7 mile below the Clyman wastewater treatment facility outfall (site C55). All three samples contained dissolved oxygen concentrations which were below the minimum stream standard level of 2 mg/l. These dissolved oxygen concentrations ranged from 0.5 to 1.1 mg/l which is less than 12% saturation on all dates. BOD₅ in the stream ranged from 2.0 to 12.0 mg/l in the five samples taken for this parameter. There is no flow data available for this sampling period. A biological sample taken at the above site (B19) in 1973 was characterized by the field biologist as indicative of unbalanced conditions. Considering the very low loadings being discharged by the Clyman plant, it is unlikely that this facility is entirely responsible for the water quality problems in the Clyman tributary. Agricultural runoff, degradation of marsh plants along the watercourse, and low stream flow, probably contribute significantly toward the stream's poor water quality.

3.3.3.2 Dead Creek

Length: 10.3 miles

Average Gradient: 4.4 feet per mile

Water Quality Classification:

- a) Upstream from CTH "M" - Marginal Surface Waters.
- b) From CTH "M" to St. Helena Road - Intermediate Aquatic Life.
- c) Downstream from St. Helena Road - Fish and Aquatic Life.

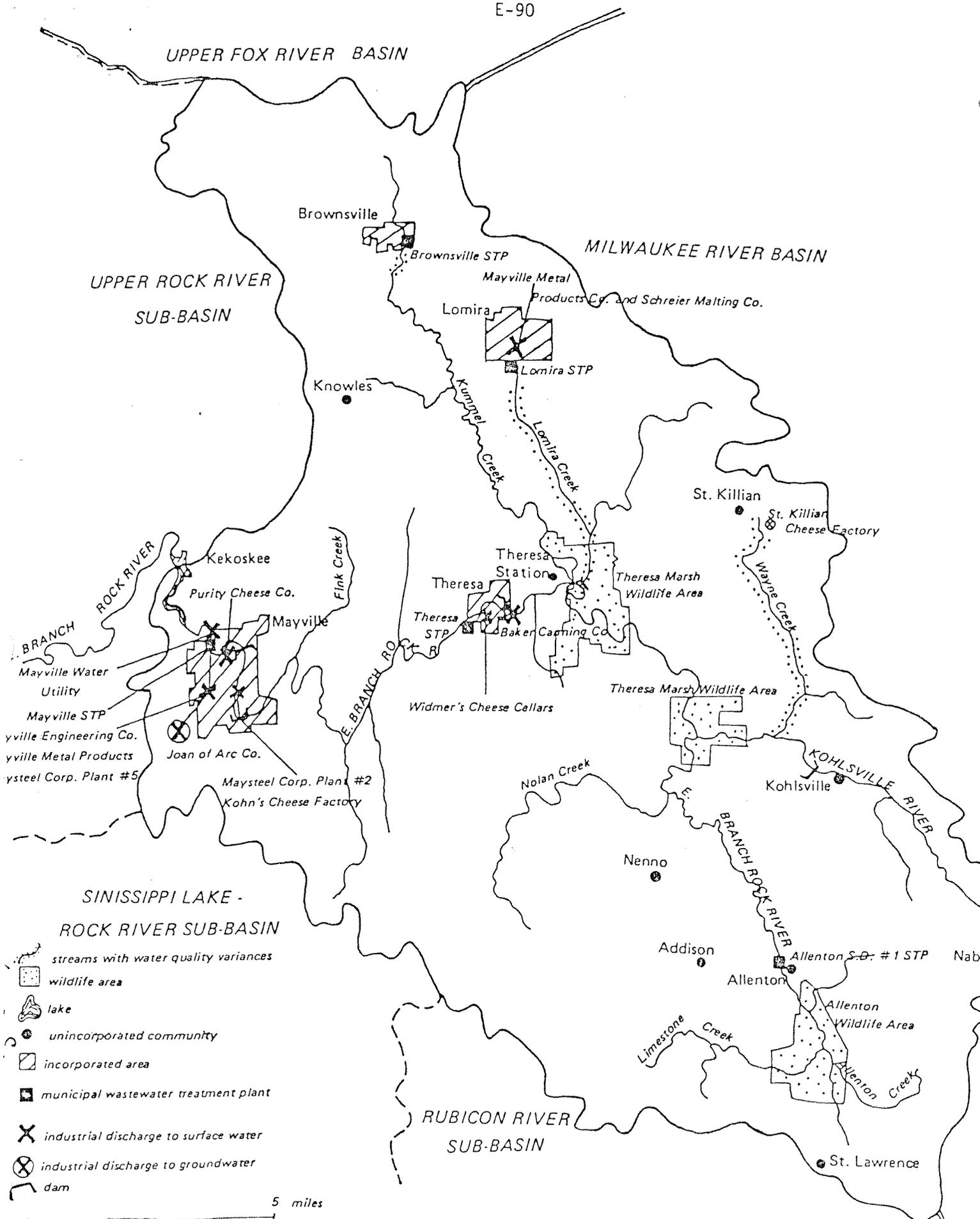
Dead Creek is a small, low-gradient stream which originates near the City of Juneau in Dodge County and flows south and then east to discharge into Lake Sinissippi. Over 1,900 acres of wetlands, including a large marsh near the stream's mouth, adjoin the creek. The stream has experienced severe algae blooms in the past due to its overly fertile conditions. Dead Creek and its tributaries were chemically treated in 1973 to remove rough fish species. Above CTH "M", the stream has been classified as an effluent ditch which must meet water quality standards for marginal surface waters. Below CTH "M", the stream has been classified as continuous and must meet water quality standards for intermediate aquatic life above St. Helena Road and standards for fish and aquatic life below St. Helena Road.

Dead Creek originates at the southern boundary of the City of Juneau where it receives the flow from the city's storm sewers. Two industries discharge to the storm sewers that empty into Dead Creek. The Juneau Utility Commission's Well #1 currently operates only on an emergency basis. When it does operate, iron filter backwash waters are discharged to the city storm sewers. The Pauly Cheese Company, Division of Swift and Company, discharges 17,800 gpd of noncontact cooling waters to storm sewers leading to Dead Creek. Approximately 0.4 mile below the storm sewer discharge point, the Juneau wastewater treatment facility has an outfall to Dead Creek. This facility discharged an average of 39 lbs/day BOD₅ and 15 lbs/day suspended solids in 1976 based on an average flow of 0.225 MGD (or 0.348 cfs). The Q_{7,10} of Dead Creek at Juneau is 0 cfs. Sampling of the facility's effluent by the DNR in 1973 showed occasionally excessive levels of fecal coliforms with counts reaching as high as 300,000 MFFCC/100 ml. The City of Juneau is currently planning a new wastewater treatment facility to be shared with Milbrew, Inc., the city's largest industrial discharger.

UPPER FOX RIVER BASIN

UPPER ROCK RIVER SUB-BASIN

MILWAUKEE RIVER BASIN



- streams with water quality variances
- wildlife area
- lake
- unincorporated community
- incorporated area
- municipal wastewater treatment plant
- industrial discharge to surface water
- industrial discharge to groundwater
- dam

5 miles

EAST BRANCH ROCK RIVER SUB-BASIN

FIGURE E 13

Appendix D

Chemical and Biological Data Collected in 1973

109			KUMHEL CR AT STN 28 BRIDGE				1.3										
DATE	FLD.	T	DO	PH	MFFCC	BOD-5	TOT	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	MG/L	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 5 24		18	9.5	8.0		20											
73 7 23		22	5.1	7.8		230											
73 9 27		16	3.2	7.6		1100											

110			FOHREMAN CANNING CO RUNOFF				0.8										
DATE	FLD.	T	DO	PH	MFFCC	BOD-5	TOT	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	MG/L	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 7 23		26		8.0		30											
73 9 19		12		7.0		1000											
73 9 28		16		6.0		100											
73 10 10		16		6.0		100											

111			COOLING OUTFALL FOHREMAN CANNING				0.6										
DATE	FLD.	T	DO	PH	MFFCC	BOD-5	TOT	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	MG/L	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 7 23		24		8.2	<	10											
73 9 17		18		6.0	<	10	1										
73 9 26		26		7.6		20											

112			TRIB KEKUSKEE ST BRG MAYVILLE				0.1										
DATE	FLD.	T	DO	PH	MFFCC	BOD-5	TOT	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	MG/L	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 5 25		15	8.5	7.6		1100											
73 7 23		25	9.9	6.4		30											
73 9 28		19	2.3	7.2		410											
73 10 10		18	4.9	7.8		260											

113			DEAD CR DRAIN TILE OUTFALL JUNEAU														
DATE	FLD.	T	DO	PH	MFFCC	BOD-5	TOT	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	MG/L	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 11 5						1800											

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114 JUNEAU STP OUTFALL																	
DATE	FLC	T	DO	PH	MFFCC	BOD-5	9.5	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	TOT SOL MG/L	SOL MG/L	SOL MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 2 27																	
73 6 7		16		7.6	340	15.0		10	0								
73 6 21					200	14.0		15	15								
73 6 25		17		7.6	300000	23.0											
73 7 9						66.0		25	20								
73 7 24		22		7.6	< 10	15.0											
73 8 2					1400	5.2		10	0								
73 9 20		16		7.4	10000	13.0		10	5								
73 10 1		18		7.8	< 100												

115 HILBREW COOL WATER OUTFALL																	
DATE	FLC	T	DO	PH	MFFCC	BOD-5	9.5	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	TOT SOL MG/L	SOL MG/L	SOL MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 6 7		31		7.6	340	2.9											
73 6 21		20		6.0	270	2.5											
73 7 24		31		6.0	230	3.3											
73 6 2						1.2		5	0								
73 9 19						1.6		10	5								
73 9 20		20		6.0	270	3.3											
73 10 1		22		6.0	600	2.2											
73 12 11						1.8											

116 HILBREW R&F FILL W & L DITCH																	
DATE	FLC	T	DO	PH	MFFCC	BOD-5	9.5	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	TOT SOL MG/L	SOL MG/L	SOL MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 6 21						4.5		10	10								
73 6 25		20		7.6	300	41.0											
73 7 24		26		7.6	600	17.0											
73 6 2						15.0		20	5								
73 9 4						21.0		5	5								
73 9 20						> 490.0		30	20								
73 10 1		17		7.2	4400	235.0											
73 12 11						1840.0											

118 LEAD CR 50 FT CONFLUENCE OF E&W DITCH																	
DATE	FLC	T	DO	PH	MFFCC	BOD-5	9.5	SUS	VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY MM DD	CFS	DEG C	MG/L		/100ML	MG/L	TOT SOL MG/L	SOL MG/L	SOL MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
73 6 7		20		6.0	45000	66.0											
73 7 24		25		7.6	4000	23.0											

DATE		116	DEAD CR	SD FT	CONFLUENCE OF E&W	DITCH	9.0	SUS VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY	MM	DD	FLUW	T	DO	PH	MFFCC	BOD-5	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
			CFS	DEG	C	MG/L	/100ML	MG/L	MG/L	MG/L						
73	10	1		19	0.4	7.4	4700	31.0								
73	12	11						410.0								

DATE		119	DEAD CR	AT SHADY	LANE RD		8.5	SUS VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY	MM	DD	FLUW	T	DO	PH	MFFCC	BOD-5	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
			CFS	DEG	C	MG/L	/100ML	MG/L	MG/L	MG/L						
73	6	7		19	0.0	7.6	40000	57.0								
73	7	24		26	0.3	7.6	2500	5.7								
73	10	1		14	1.2	7.2	2100	37.0								

DATE		120	DEAD CR	AT CTH	RD		5.8	SUS VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY	MM	DD	FLUW	T	DO	PH	MFFCC	BOD-5	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
			CFS	DEG	C	MG/L	/100ML	MG/L	MG/L	MG/L						
73	6	7		20	1.2	7.6	4300	13.0								
73	7	24		24	0.8	7.6	26000	9.8								
73	9	19						74.0			3.40	1.44	0.01	< 0.01	15.00	15.00
73	9	20						51.0								
73	10	1		19	3.9	7.4	2800	16.0								

DATE		121	DEAD CR	AT EAGLE	ROAD			TOT	SUS VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY	MM	DD	FLUW	T	DO	PH	MFFCC	BOD-5	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
			CFS	DEG	C	MG/L	/100ML	MG/L	MG/L	MG/L							
73	6	21						4.9									
73	9	19						73.0									
73	9	20						5.7									

DATE		122	DEAD CR	AT STM	115			TOT	SUS VOL	SUS	ORG-N	NH3-N	NO2-N	NO3-N	TOT P	SOL P	CL
YY	MM	DD	FLUW	T	DO	PH	MFFCC	BOD-5	SOL	SOL	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L	MG/L
			CFS	DEG	C	MG/L	/100ML	MG/L	MG/L	MG/L							
73	9	19						15.0									

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123 LEAD CR AT FAHNS RD E OF STH 115
 DATE 73 9 19 FLOW T DO PH MFFCC
 YR MH DU CFS DEG C MG/L /100ML
 800-5 TOT SUS VOL SUS ORG-N NH3-N NO2-N NO3-N TOT P SOL P CL
 MG/L SOL MG/L MG/L MG/L MG/L MG/L MG/L MG/L
 47.0

124 LEAD CR AT ST HELENA RD
 DATE 73 9 19 FLOW T DO PH MFFCC
 YR MH DU CFS DEG C MG/L /100ML
 800-5 TOT SUS VOL SUS ORG-N NH3-N NO2-N NO3-N TOT P SOL P CL
 MG/L SOL MG/L MG/L MG/L MG/L MG/L MG/L MG/L
 11.0

125 LEAD CR AT SWAMP RD BRG
 DATE 73 9 7 FLOW T DO PH MFFCC
 YR MH DU CFS DEG C MG/L /100ML
 800-5 TOT SUS VOL SUS ORG-N NH3-N NO2-N NO3-N TOT P SOL P CL
 MG/L SOL MG/L MG/L MG/L MG/L MG/L MG/L MG/L
 21 2.9 7.6 6.5
 24 1.2 7.8 5.3
 19 0.5 7.4 9.0

126 CLYMAN LAGOON WUTFALL
 DATE 73 5 25 FLOW T DO PH MFFCC
 YR MH DU CFS DEG C MG/L /100ML
 800-5 TOT SUS VOL SUS ORG-N NH3-N NO2-N NO3-N TOT P SOL P CL
 MG/L SOL MG/L MG/L MG/L MG/L MG/L MG/L MG/L
 16 9.0 9.0 17.0 10 5
 22 9.0 9.0 13.0
 25 8.0 8.0 7.4
 73 9 20 8.0 8.0 6.1
 73 10 1 19 10.0 10.0
 74 1 30 3 36000 8.0 10 5

127 CLYMAN TRIB AT STH 60 BRG
 DATE 73 3 25 FLOW T DO PH MFFCC
 YR MH DU CFS DEG C MG/L /100ML
 800-5 TOT SUS VOL SUS ORG-N NH3-N NO2-N NO3-N TOT P SOL P CL
 MG/L SOL MG/L MG/L MG/L MG/L MG/L MG/L MG/L
 17 0.5 7.4 23.0 12.0
 7.4 2.0

TABLE 3
BIOLOGICAL INVESTIGATION RESULTS

Sample or Segment No.	Date	River	Mileage	Source of Waste	Sample Site	Bottom Type	Current	Organisms Present								Site Classification & Remarks	
								No. of Invertebrate Species	No. of Invertebrate Indiv.	% of Total Invertebrate	No. of Tolerant Species	No. of Tolerant Indiv.	% of Total Tolerant	No. of Very Tolerant Species	No. of Very Tolerant Indiv.		% of Total Very Tolerant
Mayville B-12	12/10/73	E. Br. Rock R.	10.1	Mayville STP	200 ft. below STP outfall	Rock-Gravel	Fast	4	232	61	7	116	30	1	28	7	Clean
Lomira B-13	12/11/73	Lomira Tributary	3.6	Lomira STP	50 ft. above Water St. bridge	Silt-Vegetation	Fast	2	54	43	3	60	47	1	16	11	Clean
Brownsville B-14	12/11/73	Kummell Creek	8.7+	None	50 ft. above STP outfall	Silt-Vegetation	Moderate	-	-	-	6	580	92	1	52	8	Clean
Brownsville B-14	12/11/73	Kummell Creek	8.7-	Brownsville STP	250 ft. below STP outfall	Silt-Vegetation	Moderate	-	-	-	4	4	45	1	5	55	Unbalanced
Mayville B-15	12/10/73	Tributary	0.0+	Maysteel and Joan of Arc	25 ft. above juncture with Rock River	Sandy loam-organic debris	Slow	1	80	4	-	-	-	2	1,872	95	Polluted
Mayville B-15	12/10/73	E. Br. Rock R.	10.1+	Maysteel and Joan of Arc	50 ft. below juncture, south bank	Gravel-loam	Moderate	1	84	55	3	16	11	2	52	34	Unbalanced
Juneau B-16	12/11/73	Dead Creek	8.5	Juneau STP and Millbrew	Shady Lane Road Bridge	Silt-Organic deb.	Fast	-	-	-	1	8	7	1	104	93	Slime growths, stream gray colored from suspended material; polluted
Juneau B-16	12/11/73	Dead Creek	6.5	Juneau STP and Millbrew	Eagle Road Bridge	Silt-Organic deb.	Fast	-	-	-	1	32	8	1	368	92	Slime growths, stream with large amounts suspended material; polluted
Clyman B-17	12/11/73	Clyman Trib.	0.9	Clyman Sewage Lagoon	Hwy. 60 bridge	Silt-Clay	Moderate	-	-	-	2	10	59	1	7	41	Unbalanced
Juneau-Clyman B-18	12/11/73	Dead Creek	5.9	Juneau STP, Millbrew, Clyman Lagoon	Second Eagle Rd. Bridge	Silt	Fast-Riffle	-	-	-	3	60	29	1	148	71	Slime growths, polluted
Hartford B-19	-	Rubicon River	20.2	None	100 ft. above STP	Rock-Gravel	Fast-Riffle	-	-	-	6	56	49	4	59	50	Clean
Hartford B-19	-	Rubicon River	20.1	Hartford STP	100 ft. above Goodland Rd.	Rock-Gravel	Fast-Riffle	1	1	5	4	205	70	4	79	22	Clean, toxicity problem
Rubicon B-20	12/11/73	Rubicon Trib.	1.2	None	County Hwy. "N" Bridge	Rock-Gravel	Fast-Riffle	3	58	45	3	39	40	-	-	-	Clean
Rubicon B-20	12/11/73	Rubicon Trib.	0.8	Rubicon Cheese Factory	CTH "P" Bridge	Rock	Fast-Riffle	1	4	3	6	100	85	1	14	12	Unbalanced
Rubicon B-20	12/11/73	Rubicon Trib.	0.3	Rubicon Cheese Factory	Rome Street Bridge	Rock-Gravel	Fast-Riffle	4	119	80	9	27	19	1	2	1	Clean
Lebanon B-21	12/11/73	Trib. of Baker Creek	1.3-	Lebanon Cheese Factory	Private Road Bridge below	Organic Material	Fast	-	-	-	-	-	-	2	6	100	Polluted
Isola B-22	1/15/74	Isola Tributary	2.3-	Isola STP	200 ft. below STP outfall	Silt-Organic Deb.	Moderate	-	-	-	3	20	10	1	192	91	Polluted
Oconomowoc B-23	-	Oconomowoc R.	10.4	None	Concord Road	Gravel-Rock	Fast	4	39	40	8	900	40	3	100	13	Clean
Oconomowoc B-23	-	Oconomowoc R.	9.1	Oconomowoc STP	CTH "BB"	Gravel-Rock	Fast	2	7	14	6	420	42	7	420	41	---
Waterman B-24	1/15/74	Unnamed Trib.	5.4-	Rock Cheese Factory	100 ft. downstream from Hwy. 109	Organic Solids	Slow	-	-	-	-	-	-	-	-	-	Heavy growth of slimes, no organisms found; polluted
Waterman B-25	1/14/74	Silver Creek	4.8	None	Second Street bridge	Gravel-Sand	Fast	1	32	35	7	56	59	1	4	4	Clean
Waterman B-25	1/14/74	Clyman Creek	0.1	Aunt Nellie's Foods, Clyman	Second Street bridge	Silt-Loam	Moderate	1	4	4	7	76	76	1	22	22	Clean
Waterman B-25	1/14/74	Silver Creek	4.4	Aunt Nellie's Foods, Clyman	100 ft. below juncture of Clyman Creek	Silt-Loam	Moderate	1	174	35	8	296	60	1	33	7	Clean
Johnson Creek B-26	1/15/74	Johnson Creek	1.1	None	500 ft. above STP outfall	Rock-Gravel	Fast-Riffle	2	8	9	6	81	91	-	-	-	Unbalanced
Johnson Creek B-26	1/15/74	Johnson Creek	0.6	Johnson Creek STP	1,500 ft. below STP outfall	Silt-Mud	Moderate	-	-	-	3	45	95	1	3	6	Unbalanced

Appendix E
Chemical Data Collected in 1978

Dead Creek - Shady Lane Road

Date	Temp °C	D. O. mg/l	pH	BOD mg/l
4/7/78	14.0	1.9	7.0	>140
5/18/78	20.0	.4	6.9	260
6/6/78	24.5	.2	7.9	190
7/27/78	21.7	1.3	7.5	16
8/24/78	21.8	0.9	7.4	>40
10/3/78	17.2	0.9	7.6	22
10/26/78	14.9	0.5	7.4	96
12/12/78	11.0	0.5	6.8	360

Dead Creek - St. Helena Road

Date	Temp °C	D. O. mg/l	pH	BOD mg/l
4/7/78	8.5	4.9	7.4	8.0
5/18/78	20.2	3.8	7.4	3.1
6/6/78	21.0	1.6	7.4	6.1
7/27/78	23.8	0.1	7.3	7.4
8/24/78	24.9	7.9	7.6	9.4
10/3/78	15.3	1.6	7.3	2.9
10/26/78	8.2	4.0	7.4	3.3
12/12/78	0.1	1.0	7.2	13.0

Appendix F

Compliance Monitoring Report for Milbrew

COMPLIANCE MONITORING SURVEY REPORT

Milbrew, Incorporated
330 South Mill Street
Juneau, Wisconsin 53039

Conducted on October 20, 1977 by:

Thomas Muga - Natural Resources Technician
Allen Wendorf - Natural Resources Technician
Robert Weber - Environmental Engineer

General Information

WPDES Permit No. - WI-0002534

Date of Issuance - December 27, 1974

Date of Modification - August 23, 1977

Date of Expiration - June 30, 1978

Drainage Basin - Upper Rock River - 011

Receiving Water - Dead Creek via a ditch tributary

Responsible Officials - Sheldon Bernstein - President

Norman Bernstein - Vice President

Reno Zanussi - Director of Engineering

Facility Description

Milbrew, Incorporated, processes whey and brewers yeast into edible dried food products and ethyl alcohol. An estimated 200,000 gallons per day of high strength process wastewater is partially treated by means of a lagoon system. The wastewater flows through an aerated lagoon and then into two 10 acre holding-seepage ponds previously designed as a ridge and furrow system. Pond effluent may be discharged directly to the

effluent ditch at outfall 002 or directed to a spray irrigation system as the weather permits. The process wastes generated during the colder months were to be stored in a Department approved holding pond after being pretreated using a rotating biological media (RBM) - aerated lagoon pretreatment system. This stored waste would then be irrigated gradually along with wastes generated during the months of the growing season. Due to unforeseen problems, the complete waste disposal system as approved was never constructed. The spray irrigation system was the only portion completed and went into operation in July, 1977. After the first 6 months of operation, it was determined that acquisition of additional land was necessary. This decision was based upon the unfavorable soil characteristics and the fact that only 50 acres of the 80 acre irrigation field is suitable for use.

An average of 300,000 gallons per day of cooling water is discharged at outfall 001 to the ditch tributary. The cooling water is used for tube in shell condensers and plate heat exchangers. The outfall culvert is equipped with a 90° V-notch weir. The weir is not level and the flow measurement obtained using this device is a rough estimate at best since some water also leaks around the side of the weir plate. There is no flow in the ditch prior to the outfall, however, the Juneau municipal sewage treatment plant discharges its effluent to the ditch at a point approximately 500 yards downstream. Several storm drains also enter between these two effluent discharges.

Survey Performance

Grab samples at outfall 001 were collected at 9:30, 10:30, and 11:30, composited, and submitted to the Wisconsin State Laboratory of Hygiene

for analysis. Temperature, dissolved oxygen, and pH field measurements were performed at the outfall as well as at selected locations downstream from the outfall. The last measurements were taken at the point of mix with the municipal STP effluent. Observations with respect to appearance of the water, biological growths, and odors were noted at locations where measurements were taken. Laboratory and field test results performed on the effluent samples are tabulated in Appendix I. Appendix II shows results of field measurements made at the locations downstream from the cooling water outfall. Appendix III is a summary of 1977 Self-Monitoring Report data.

The process waste disposal system was inspected. The spray irrigation system was not in operation and all process wastes were being stored in the pond at the time of this inspection.

Appendix I - Effluent Discharge

Parameter	Survey Results		Permit Limitations		
	Effluent	Sample Type	Min.	Ave.	Max.
Flow MGD			--	--	--
Diss. Oxy. mg/l	4.8	probe	--	--	.75
pH SU	8.4	grab	6.0	--	7.5
BOD ₅ mg/l	>420	3 hr. Comp.	--	--	11
Susp. Solids mg/l	16	3 hr. Comp.	--	30	60
NH ₃ -N mg/l	4.02	3 hr. Comp.	--	--	2.7
Temperature °C	34	grab	--	--	31.7

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	1977 AVERAGE
Flow MGD	.441	.405	.469	.366	.337	.218	.217	.182	.269	.235	.224	.233	.300
BOD ₅ mg/l	9	10	9	10	9	10	5	11	11	15	9	14	10
Susp. Solids mg/l	--	--	--	--	--	--	5	18	11	16	17	10	13
NH ₃ -N mg/l	--	--	--	--	--	--	1.1	4.5	1.3	2.4	1.2	1.3	2.0
pH range Min/Max	6.9/7.7	6.8/7.7	6.9/7.6	6.8/7.6	6.8/7.6	6.9/7.7	6.3/7.7	7.4/8.9	7.4/8.7	7.4/8.7	7.4/8.5	5.2/8.4	5.2/8.9
Temp °F	82	82	82	82	82	76	83	82	81	82	78	75	81
Diss. Oxygen mg/l	--	--	--	--	--	--	6.8	6.5	6.7	6.7	7.1	6.9	6.8

Outfall 001 - Noncontact Cooling Water directly to ditch tributary.

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	1977. AVERAGE
Flow MGD	.071	.093	.111	.135	.129	.107	.065	--	--	--	--	--	.102
BOD ₅ mg/l	3097	3331	2726	1667	675	590	296	--	--	--	--	--	1769
Susp. Solids mg/l	235	186	156	165	200	151	262	--	--	--	--	--	194
NH ₃ -N mg/l	75.5	57.0	49.2	91.6	81.7	90.7	70.9	--	--	--	--	--	73.8
pH Min.	5.9	5.7	5.7	6.0	6.8	6.9	7.1	--	--	--	--	--	5.7 (min.)
pH Max.	6.0	6.1	6.0	7.0	7.3	7.4	7.8	--	--	--	--	--	7.8 (max.)

Outfall 002 - Process wastewater to ditch tributary after treatment.

Appendix II

Characteristics of water in effluent ditch

Location	Time	pH-SU	D.O. mg/l	Temp °C	Other Comments
Outfall	9:30	8.4	5.2	34	Suspended organic material, unpleasant odor
30 feet downstream	9:45	8.4	4.5	--	Effluent from storm sewer adds to flow
40 yards downstream	9:50	--	2.9	--	Floating oily-looking substance
100 yards downstream	10:00	--	0.9	30.5	Suspended material oily-looking substance
200 yards downstream	10:10	--	1.1	27.2	Odor getting worse
300 yards downstream	10:20	7.1	1.2	25	Excess bacterial growth
500 yards down before STP effl.	11:18	7.2	2.2	24	--
STP effl.	11:20	7.3	2.6	14.8	--
Mix Point	11:22	7.2	2.4	17.5	--

Bacterial growth observed for entire reach of stream.

Appendix G
Biological Data Collected in 1968

TABLE 2

RESULTS OF BIOLOGICAL STREAM SURVEYS
DEAD CREEK
JUNEAU TO SINISSIPPI LAKE

1968

<u>Sample Area And Date</u>	<u>Stream Mile</u>	<u>Bottom Type</u>	<u>Current</u>	<u>Organisms/ft²</u>		<u>Very Tolerant</u>	<u>Interpretation</u>
				<u>Intolerant</u>	<u>Tolerant</u>		
Shady Lane Road Bridge 1.0 miles below Juneau STP & Milbrew, Inc. 2/15	8.5	Grass- Slimes	Moderate	0	0	28	Unbalanced
Shady Lane Road Bridge 1.0 miles below Juneau STP & Milbrew, Inc. 7/15	8.5	Grass- Slimes	Moderate	0	0	1,168	Unbalanced
CTH "M" Bridge 2/15	5.8	Silt	None	0	0	100%	Qualitative Sample- Unbalanced
Town Road Bridge 7/15	3.8			0	0	376	Unbalanced
St. Helena Road Bridge 2/15	0.8	Silt- Hard	None	0	10	72	Start of a Recovery Zone

(Continued)

CORRESPONDENCE/MEMORANDUM

Horicon DNR

Date: January 12, 1983

File Ref: 3200

To: Files

From: Keith F. Hutchison

Subject: Stream Classification of Dead Creek Tributary at Clyman

On October 27, 1982, the Dead Creek Tributary was assessed at the Clyman Wastewater Treatment Plant (WWTP) in Dodge County. This stream is basically only a ditch through a wetland at the WWTP. The stream was about six feet wide and 4 inches deep with a peat or muck substrate. The stream dries up often as the Q7,2 is zero. There is very little habitat for aquatic life.

The stream system habitat rating form was used and the stream was assigned a value of 176 which corresponds to a D "use class." However, the lack of habitat and the fact that the stream frequently dries up limits it to an E "use class." Based on the above information the Dead Creek Tributary should be classified as a class E stream, or noncontinuous marginal surface waters at Clyman.

KFH:bes

cc: Tom Bainbridge - SD

→ Dan Moran - WRM/2

NOTED:

Date:

Clyman Utility Commission
Dodge County
September 28, 1976
Dead Creek Tributary

Clyman sewage treatment lagoons discharge into Dead Creek Tributary. The lagoons are located off of CTH "M" and are situated in a large marsh. Dead Creek Tributary flows out of the marsh and into agricultural area on its way to Dead Creek. At this time Dead Creek Tributary is dry. It also has been severely ditched in some areas.

Recommendations

From the Clyman sewage treatment lagoons outfall and for the remainder of Dead Creek Tributary, the classification should be noncontinuous marginal surface waters.

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

Robert Weber - District Engineer
James Congdon - Area Fish Manager
Tom Bainbridge - Stream Classification Coordinator
Roger Schlessler - Natural Resources Technician

Respectfully submitted,


Thomas Bainbridge
Stream Classification Coordinator

RS:lg





1st Town Rd br. Above
Lagoon



Lagoon Outfall