

Region NOR County Douglas Report Date ~~2/19/97~~ Classification LAL/LFF
 Water Body: Pokegema River, Trib To 311977
 Discharger: V. of Superior

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

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

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

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

Historical Reports in file:

2/1977 - T. Smith

Additional Comments/How to improve report:

-diffuse SW gets LAL by default. Not clear how LFF for
Pokegema R. #15 justified. Need more data, and data update
would also be useful.

Rejustification of the Stream Classification for the Pokegama River

The Pokegama River is essentially intermittent in flow. The entire stream is classed as minnow water, however, warm water fish species from the St. Louis River probably inhabit the lower, deeper river areas. Bottom conditions are unstable sand, gravel and clay. Due to the nature of the watershed soil types (red clay), erosion is a serious management problem. Because of unpredictable seasonal flows of water, fish and wildlife values are small. Stream access is limited, with access available at only 2 public road crossings.

Prior to installation of a wastewater treatment plant at the Village of Superior in 1963, at least 2 Wisconsin Conservation Department evaluations were noted.

On April 11, 1961 a winter fish kill in the river was investigated and the following information was reported: "The fish kill occurred above the Highway 105 bridge in Section 6, T48N, R14W. It included a large number of adult northern pike 15 to 20 inches in length, large suckers and several species of panfish including bullheads. The river still had a large amount of anchor ice in it. It is my opinion that the fish moved upstream into this area last fall where they remained in pools throughout the winter. Then from the evidence of the anchor ice the stream froze to the bottom due to its slow movement, killing all fish present. All fish observed were badly decomposed."

The second evaluation was in response to a stream relocation request by a riparian owner. The author of the memorandum states: "Pokegama Creek at this point is badly eroded and its channel changes with every heavy rainfall. Its' fishery value is low as it supports a warm water fish population of a few northern pike and panfish. In addition to the bad condition of the stream, a winter fish kill develops in pools as a result of the water freezing to the bottom almost annually."

A series of dissolved oxygen measurements were taken in the Pokegama River on March 7, 1978. As noted in the attached map, the D.O.s above the Superior lagoons were well below the fish and aquatic life criteria of 5 mg/l. Significant D.O. depletions extend out into Pokegama Bay also.

Due to natural conditions, the Pokegama River does not have the potential to support a balanced fish and aquatic life population.

STREAM: Pokegama River

DISCHARGER: Northwest

COUNTY Douglas

CLASSIFICATION RECOMMENDATION

It is recommended that the Pokegama River be classified continuous, intermediate

ADDITIONAL COMMENTS

ATTACHMENTS

~~Surface Water Resources of Douglas County (1973)~~
~~Lake Superior Drainage Basin Report (October 1978)~~

REFERENCES USED

Star.
Surface Water Resources of Douglas County
(1973)
Lake Superior Drainage Basin Report
(October 1978)

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
 STREAM CLASSIFICATION WORKSHEET

Receiving Watercourse : Pokegama River
 District : Northwest
 Location : T. 48 N., R. 15 W. Section 25 to
 T. 48 N., R. 14 W. Section 16
 Major Basin : Lake Superior
 Discharger : Village of Superior
 Flow (Design & Actual) :

Type of Treatment : ~~Primary Treatment Single~~
~~Cell 200:1720:000 4000~~
~~(A B F 1978)~~

Recommended No.	Reach	Classification Location
	1	Above Village of Superior STP
	2	Below Pipeline Crossing
	3	At Riverside Cemetery

Date of Field Observations 1961, 1963, 1974

Personnel : Class :

Other Persons Contacted :

Noted by WQES :

Date :

PHYSICAL FEATURE	STREAM CLASS REACHES					
	1	2	3	4	5	
Watershed Character (maps or observations)	Size (sqmi)	28.30				
	Vegetation Type					
	Predominant Land Use	Wooded				
	Wetland Type	11,400 acres				
Hydrologic Features (indicate if estimate or actual measurements)	Width (ave)	4 ft.				
	Depth (ave/max)	0.2 ft. ave.				
	Velocity (est)(fps)	Slow - Moderate				
	Flow (cfs)	0.1 est. normal	Stream is subject to near zero flow during dry periods + very high flow during runoff			zero high
	Pools or Refuges for Fish Not observed	A few northern pike and a few pan fish				suckers
	Bottom Type	Silt				
Sand		X				
Gravel		X				
Rubble		X				
Control Structures or Obstructions	Other - Clay	X				
	None					
Irretriev. Channel Alterations	0.02 cfs	Stream was diverted to prevent the Riverside Cemetery from eroding into it.				
Discharge Q ₇₁₀	0.02 cfs R:14W.	at NW 1/4, NW 1/4, Section 10, T. 48N.,				

CHEMICAL CHARACTERISTICS

STATION RECEIVING WATER

		1	2	3	4	5
Field Measurements	Dissolved/Time Oxygen (ppm)	10.6 (1-18-74) 11.7 (2-13-74) 8.3 (6-13-74) 7.7 (7-12-74) 9.4 (9-3-74)	7.4 (1-18-74) 8.3 (3-6-74) 8.6 (6-13-74) 5.5 (7-12-74) 9.5 (9-3-74)	9.6 (3-6-74)		
	Temperature (°C)	0 (1-18-74) 0 (2-13-74) 17 (6-13-74) 23 (7-12-74) 17 (9-3-74)	5 (1-18-74) 3 (3-6-74) 17 (6-13-74) 17 (7-12-74) 14 (9-3-74)	3 (3-6-74) 8 (5-15-74)		
	Percent Saturation	17 (9-3-74)				
	pH/Time	7.6 (1-18-74) 7.6 (2-13-74) 7.2 (6-13-74) 8.8 (7-12-74) 7.8 (9-3-74)	7.5 (1-18-74) 7.6 (3-6-74) 7.2 (6-13-74) 7.9 (7-12-74) 7.9 (9-3-74)	7.6 (3-6-74) 7.5 (5-15-74)		
	Turbidity (transparency)					
Lab Analysis	BOD ₅ (mg/l)	2.0 (1-18-74) 5.5 (5-15-74) 12.0 (6-13-74) 4.0 (7-12-74) 1.6 (9-3-74)	3.3 (1-18-74) 2.0 (3-6-74) 4.5 (5-15-74) 4.9 (6-13-74) 10.6 (7-12-74) 2.5 (9-3-74)	11.0 (3-6-74) 4.3 (5-15-74)		
	MFC/100 ml	210 (1-18-74) 70 (5-15-74) 80 (6-13-74) 150 (7-12-74) 50 (9-3-74)	3600 (1-18-74) 4300 (3-6-74) 70 (5-15-74) 60 (6-13-74) 20 (7-12-74) 30 (9-3-74)	20 (3-6-74) 146 (5-15-74)		
List: Parameters						

BIOLOGICAL CHARACTERISTICS
(continued)

STATIONS ON RECEIVING WATER

		1	2	3	4	5
Reaches of Critical or Particular Wildlife Value eg: ↓	Spawning Areas	Because of unpredictable seasonal flows of water, fish and wildlife values are small.				
	Critical Habitats					

CULTURAL FEATURES

STATIONS ON RECEIVING WATER

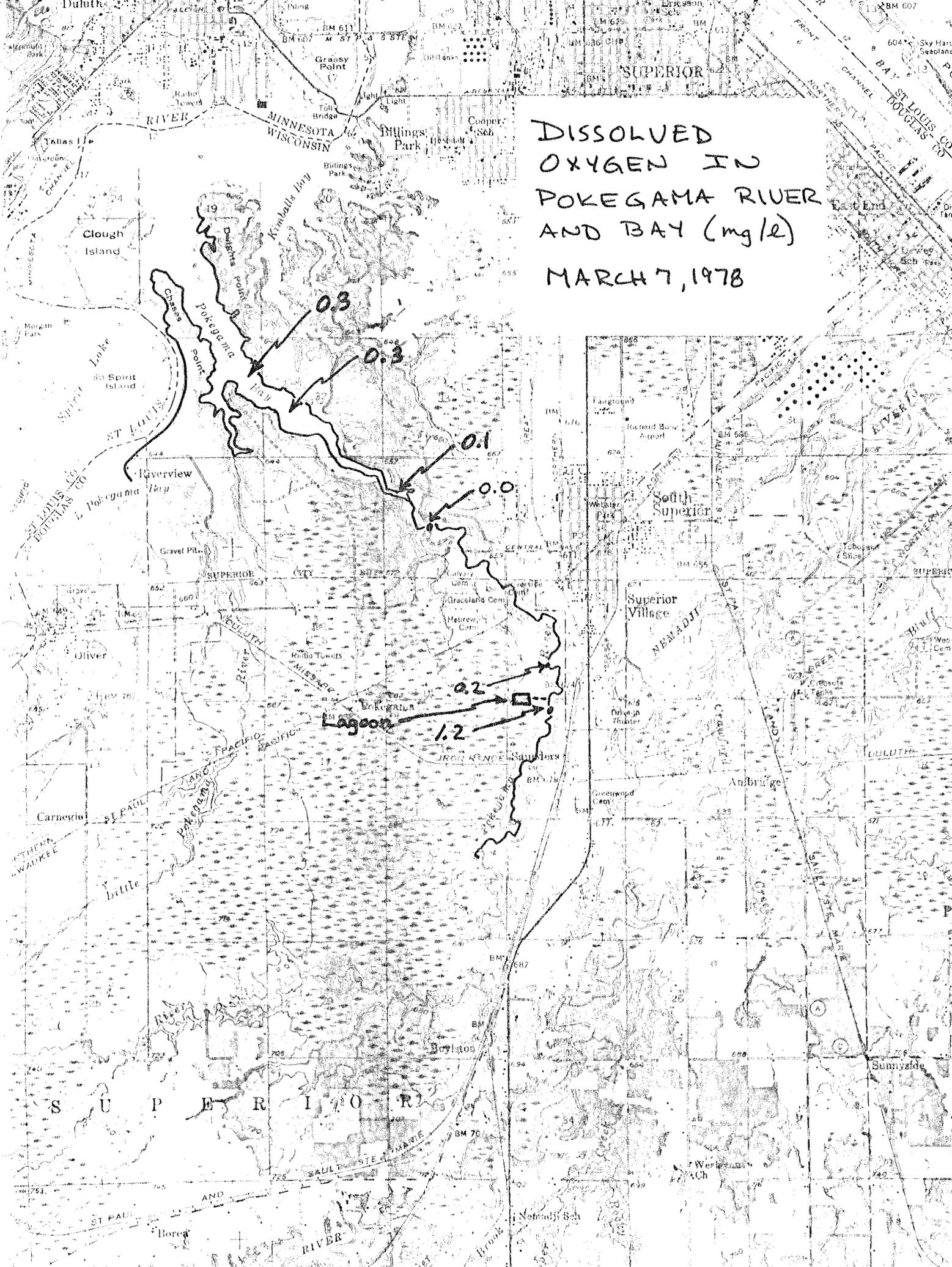
		1	2	3	4	5
Recreational Uses	Low					
	Fishery value is low as it supports a population of a few northern fish kills develop in pools due to					Fish Winter
Type of Drainage Sources Observed						
Discharges						

BIOLOGICAL CHARACTERISTICS

STATIONS ON RECEIVING WATER

	1	2	3	4	5
Bank Vegetation					
Aquatic Macrophytes					
Invertebrates	Ephemeroptera - Common throughout stream Tricoptera: Present - above STP, Common - below STP Megaloptera - Present above STP Coleoptera - Present above STP, Common below STP Diptera - Common throughout stream Pelecyfoda - Present below STP Oligochaeta - Present above STP, Common below STP				
Phytoplankton (algae)					
Fish Observed	Northern Pike - a few Panfish - a few Bullheads				
Fishery Classification	Minnow Waters				

DISSOLVED
OXYGEN IN
POKEGAMA RIVER
AND BAY (mg/l)
MARCH 7, 1978



Department of Natural Resources

INTRA-DEPARTMENT

MEMORANDUM

..... Spooner

..... Station

Date..... February 11, 1977.....

IN REPLY REFER TO: 3200

TO: Anthony S. Earl
FROM: L. G. Hansen
SUBJECT: Surface Water Classification (NR 104)
Village Of Superior, Douglas County

The Village of Superior discharges treated wastewater from a single cell stabilization lagoon operated on a fill and draw basis. Lagoon effluent enters the Pokegama River via a 300 yard natural drainageway. The drainageway is normally dry except in times of runoff.

The Pokegama River is a drainage stream subject to near zero flow during dry periods and very high flow during runoff. Because of the red clay channel, the Pokegama normally carries a high suspended solids load. Near the Village of Superior lagoon, the Pokegama is classed as minnow water while the lower reaches are inhabited by warm water species from the St. Louis River.

A map and photographs are attached.

RECOMMENDATION

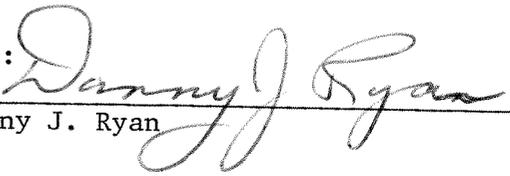
The natural drainageway receiving treated wastewater from the Village of Superior stabilization lagoon shall be classified as "diffused surface water" (NR 104.02(1)(b)) and shall be placed in the "marginal surface water" variance category (NR 104.02(3)(b)).

The Pokegama River, because it exhibits characteristics of being perpetually wet, shall be classified as a continuous stream (NR 104.02(1)(f)) even though zero flow may occur. The Pokegama River is considered to be surface water not supporting a balanced aquatic community. A variance from fish and aquatic life and recreation use standards is prevented by the designated standards for interstate waters specified in NR 103.03(4).


Ted R. Smith

TRS:mm

APPROVED:



Danny J. Ryan

2/14/77
Date

NOTED:

Date



POKEGAMA RIVER
AT PIPELINE CROSSING
BELOW VILL. OF SUPERIOR
LAGOON DISCHARGE

75

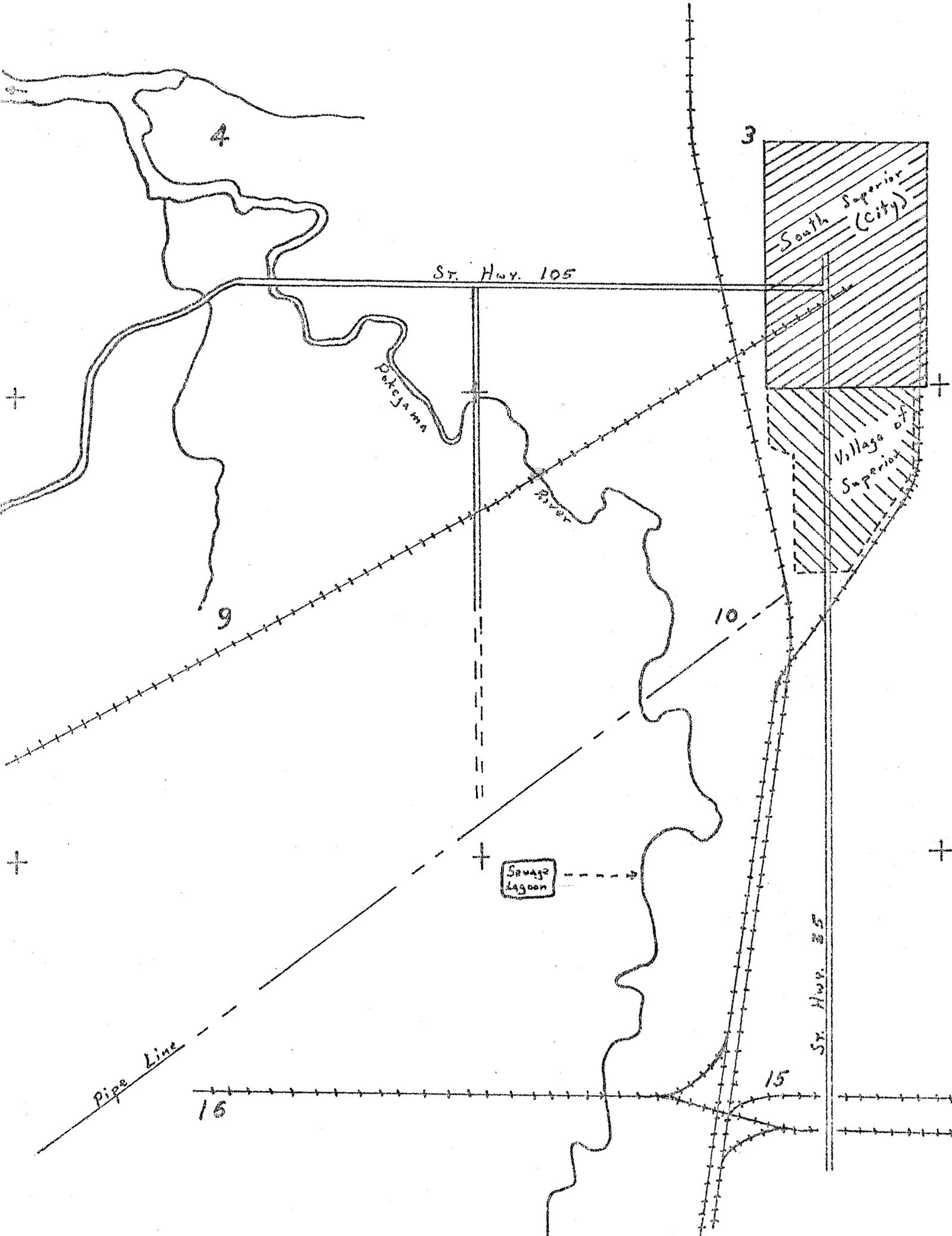


POKEGAMA RIVER
UPSTREAM FROM R.R.
TRESTLE, BELOW LAGOON
DISCHARGE

75



POKEGAMA RIVER
DOWNSTREAM FROM R.R.
TRESTLE, BELOW LAGOON
DISCHARGE





POKEGEM RIVER
LOOKING DOWNSTREAM FROM POINT
OF EFFLUENT INTRODUCTION



VILLAGE of SUPERIOR
EFFLUENT ENTERING THE
POKEGEMA RIVER .