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THE  
ONTARIO WATER RESOURCES  
COMMISSION

WATER POLLUTION SURVEY

of the

TOWN OF KENORA

DISTRICT OF KENORA

1964

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Report on a water pollution  
survey of the town of Kenora,  
district of Kenora.

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R E P O R T

on a

WATER POLLUTION SURVEY

of the

TOWN OF KENORA

District of Kenora

September 14 and 15, 1964.

Division of Sanitary Engineering

REPORT

ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water pollution survey was conducted in the Town of Kenora on September 14 and 15, 1964.

Information pertinent to the survey was provided by the Town Engineering Department, and assistance in the sampling programme was given by Mr. L. Hakenson, Public Health Inspector, Northwestern Health Unit.

GENERAL

The Town of Kenora with a 1963 assessed population of 10,996 (1964 Municipal Directory) is located near the mouth of the Winnipeg River on the north-east shore of Lake of the Woods.

General drainage from the extreme north, and the Ontario-Minnesota Pulp and Paper Co. Ltd., Kenora Mill areas, discharges into the Winnipeg River, while drainage from most of the downtown business area, and the north and south-central areas discharges into the Lake of the Woods. Drainage from the central-east section flows into the Laurensen Creek watercourse.

In general, domestic and industrial sanitary sewage and wastes, other than that from the paper mill, are collected in a system of municipal sewers and discharged into the above named watercourses without treatment. The treatment and disposal of

waste from the paper mill operation is discussed in an OWRC Industrial Waste Report dated September 1964.

In some built up areas where sewer service is not available septic tank systems are employed for the treatment of domestic sewage. Such units are installed under the supervision of the Northwestern Health Unit. It was learned that due to adverse soil and rock outcrop conditions in some areas where efforts are made to utilize septic tank systems, field tile disposal beds do not function satisfactorily. This condition results in seepage or direct discharge of inadequately treated wastes into surface-water drains, the Winnipeg River, Laurenson's Creek, and Lake of the Woods.

#### WATER QUALITY ANALYSES

In order to assess the degree of pollution being discharged from Kenora into the adjacent water areas, samples were collected where possible from the flow at or near the outfall of all drains and sewers which were located.

The sanitary chemical analyses and bacteriological examinations of such samples are listed in Table 1.

The locations of the sampling points are indicated on the accompanying map.

#### INTERPRETATION OF LABORATORY ANALYSES

For convenience in the interpretation of laboratory analyses the Ontario Water Resources Commission water quality objectives for

surface-water drains, watercourses and bodies of water are listed:

Surface-Water Drains

5-day BOD (Biochemical Oxygen Demand)

- not greater than 15 parts per million (ppm)

Suspended Solids

- not greater than 15 parts per million (ppm)

Coliform Count M.P.N. (Most Probable Number)

- not greater than 2400 per 100 cubic centimeters (c.c.)

Anionic Detergent as ABS

- The presence of anionic detergent in water samples indicates pollution from domestic sources.

Watercourses and Bodies of Water

5-day BOD (Biochemical Oxygen Demand)

- not greater than 4 parts per million (ppm)

Coliform Count M.P.N. (Most Probable Number)

- not greater than 2400 per 100 cubic centimeters (c.c.)

SIGNIFICANCE OF LABORATORY ANALYSES

The results of the analyses of almost all samples collected from the municipal drains were greatly in excess of the OWRC water quality objectives. It is therefore indicated that a condition of gross pollution exists in the sewers throughout the town. The excessively high 5-day BOD's indicate an extremely high concentration of polluting material, while the high bacteriological counts and anionic detergent contents indicate that domestic sewage is probably a major source of pollution.

Processing waste from the Vacation Land Co-operative Dairy, located on Ninth Street North, is discharged without treatment into the Ninth Street sewer (Sample No.9). Waste from the Lakeland Dairy, located on Main Street S., is likewise discharged without treatment into the Main Street sewer (Sample No.5). Untreated wastes are discharged from two laundry operations on Matheson Street, presumably into the Matheson Street sewer (Sample No. 4).

### CONCLUSIONS

Sanitary sewage, domestic and industrial wastes produced in the Town of Kenora are being discharged without adequate treatment into the adjacent waters of Lake of the Woods, Winnipeg River and Laurenson's Creek. This practice constitutes a violation of Section 27 of the Ontario Water Resources Commission Act. Section 27 of the Ontario Water Resources Commission Act reads:

"Every municipality or person that discharges or deposits or causes or permits the discharge or deposit of any material of any kind into or in any well, lake, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of any well, lake, river, pond, spring, stream, reservoir or other water or watercourse is guilty of an offence and on summary conviction is liable to a fine of not more than \$1,000 or to imprisonment for a term of not more than one year, or to both."

As a measure in the control of water quality, and the abatement of pollution in Lake of the Woods water areas adjacent to Kenora, the institution of a municipal sewage treatment system is necessary.



This system should provide for the collection conveying, and treating of sanitary sewage, domestic wastes, and industrial wastes. The producers of industrial wastes which would not be acceptable for conventional treatment, would be required to provide adequate treatment for their own wastes.

A preliminary report on the sewage requirements for the town has been prepared and submitted by a consulting engineer.

#### SUMMARY

A water pollution survey was conducted in the Town of Kenora on September 14 and 15, 1964.

The sanitary chemical analyses and bacteriological examinations of the discharge flows from eight of ten municipal drains investigated, indicated an extremely high level of pollution. The excessive 5-day BOD indicated an abnormal concentration of polluting materials. The excessively high coliform counts and the presence of anionic detergent indicate that sanitary sewage, and other domestic and industrial wastes, are major sources of the contamination.

A system of municipal sewers is provided for collecting sanitary sewage and other wastes. Such waste is discharged without treatment into the Winnipeg River, Laurensen's Creek, and the adjacent water areas of Lake of the Woods.

As a measure in the abatement and control of pollution in the above named waters the institution of a municipal sewerage system

is deemed necessary.

RECOMMENDATIONS

As a result of the findings of this survey it is recommended that measures be taken to discontinue the discharge of polluting materials from the Town of Kenora into the Lake of the Woods, Winnipeg River, and Laurenson's Creek.

Such measures should include the installation of the necessary sewers and the provision of an adequate method of sewage treatment.

All of which is respectfully submitted,

District Engineer: \_\_\_\_\_  
C.E. McIntyre, P.Eng.,

Approved by: \_\_\_\_\_  
K.H. Sharpe, Director.

Prepared by: J.K.Ferris

TABLE I

TOWN OF KENORA - WATER POLLUTION SURVEY

<u>Sample Number</u>	<u>Location of Sampling Point</u>	<u>Surface Water Drains and Sewers</u>					<u>Coliform Count per 100 c.c. M.P.N.</u>
		<u>5-Day BOD (ppm)</u>	<u>Total (ppm)</u>	<u>SOLIDS Susp. (ppm)</u>	<u>Diss. (ppm)</u>	<u>Anionic Detergents as ABS (ppm)</u>	
<u>OUTFALLS TO LAKE OF THE WOODS</u>							
1.W	Seventh St.S.,	115.0	458	140	318	17.6	240,000+
2.W	Fifth St.S., (near Indian Agency)	170.0	504	184	320	5.8	240,000+
3.W	Fourth Ave.S.,	460.0	582	84	498	3.4	240,000+
4.W	Matheson St.S.,	128.0	3900	3446	454	17.2	240,000+
5.W	Main St.S.,	440.0	348	106	242	0.0	240,000+
6.W	First St.S., (North Sewer)	2.0	190	24	166	0.0	210
7.W	First St.S., (South Sewer)	3.2	1062	604	458	0.0	4,600
8.W	From Main St.N., area (East of Hwy. #17).	100.0	536	140	396	8.0	240,000+

TABLE I CONT'D

<u>Sample Number</u>	<u>Location of Sampling Point</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS</u>			<u>Anionic Detergents as ABS (ppm)</u>	<u>Coliform Count per 100 c.c. M.P.N.</u>
			<u>Total (ppm)</u>	<u>Susp. (ppm)</u>	<u>Diss. (ppm)</u>		
	<u>OUTFALL TO WINNIPEG RIVER</u>						
9.W	Ninth St.N.,	112.0	524	128	396	23.0	240,000+
	<u>OUTFALL TO LAURENSEN'S CREEK</u>						
10.W	Second St.S.,	270.0	590	134	456	3.1	240,000+

