OPERATING SUMMARY

MARMORA water treatment plant

1968

ONTARIO WATER RESOURCES COMMISSION

Division of Plant Operations

Water management in Ontario

Ontario
Water Resources
Commission

135 St. Clair Ave. W.
Toronto 7
Ontario

We are pleased to present you with the Operating Summary for the water treatment facilities operated for you during 1968.

Both the financial and technical information presented should be of assistance to your present and future planning in this important phase of municipal activity.

A new format has been devised to allow greater readability with equally detailed content. We trust that this will meet with your approval.

Our staff wish to express their appreciation for your co-operation throughout the year.

D. S. Caverly,
General Manager.

D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

MARMORA

water treatment plant

operated for

THE VILLAGE OF MARMORA

by the

ONTARIO WATER RESOURCES COMMISSION

1968 ANNUAL OPERATING SUMMARY

FOREWORD

● This operating summary outlines the project's technical capabilities and financial status in 1968. Such information mirrors past and present performance, but a major intention is to anticipate the future -- to solve problems before they occur.

The new format in which this year's data are presented is designed to offer a higher level of readability than in the past, without a corresponding decrease in compactness, accuracy and detail.

Although your Regional Operations Engineer carries the major responsibility for the contents of the report, those involved in its preparation are attached to several Commission sections and divisions. The statistics section of the Division of Plant Operations compiled the information for the graphs and charts. The draughting section of the Division of Sanitary Engineering drew the graphs. The Division of Finance provided all cost data.

Only the close co-operation of these departments allowed the publication of this summary.

CONTENTS

'68 REVIEW

PLANT FLOWS

The Marmora Water Treatment plant treated 34.03 mg of water in 1968. This represents a 0.9 percent increase in volume over 1967.

OPERATING COSTS

The operating expenses for 1968 incurred by the OWRC were $1,864.04. This represents a 61.8 percent increase over the 1967 costs which were $1,151.85, an increase due primarily to the purchase of safety equipment and equipment replacement parts, and higher chemical costs.

The Corporation of the Village of Marmora incurred the following costs:

Administration	$ 603.90
Printing and Stationery	75.73
Postage	79.00
Operator's Salary	2,634.06
Operation	651.83
Maintenance	163.62
	$4,208.14

The total operating costs for the Marmora Water System in 1968 were $6,072.18.

REPAIRS & MAINTENANCE

The repairs at the treatment plant included replacing several components of the chlorinator and standby gas engine.

PROJECT COSTS

NET CAPITAL COST (Estimated)	$212,977.01
DEDUCT - Payments from Municipalities	425.00
Long Term Debt to OWRC	$212,552.01
Debt Retirement Balance at Credit (Sinking Fund) December 31, 1968	$ 27,362.10
Net Operating	$ 1,864.04
Debt Retirement	4,770.00
Reserve	1,071.92
Interest Charged	11,905.33
TOTAL	$ 19,611.29

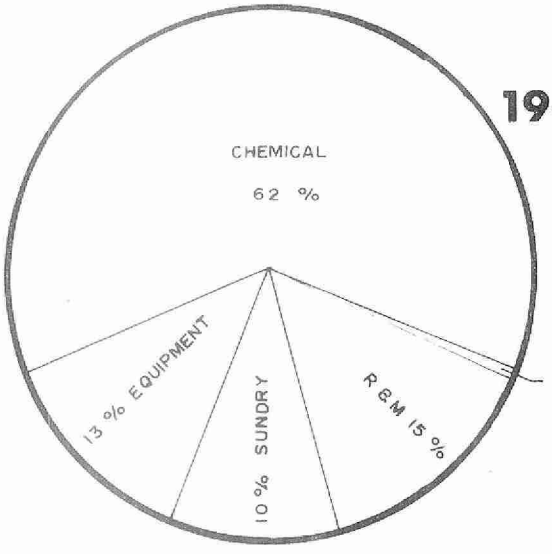
RESERVE ACCOUNT

Balance at January 1, 1968	$ 7,997.57
	1,071.92
Deposited by Municipality	497.10
Interest Earned	
	$ 9,566.59
Less Expenditures	-
Balance at December 31, 1968	$ 9,566.59

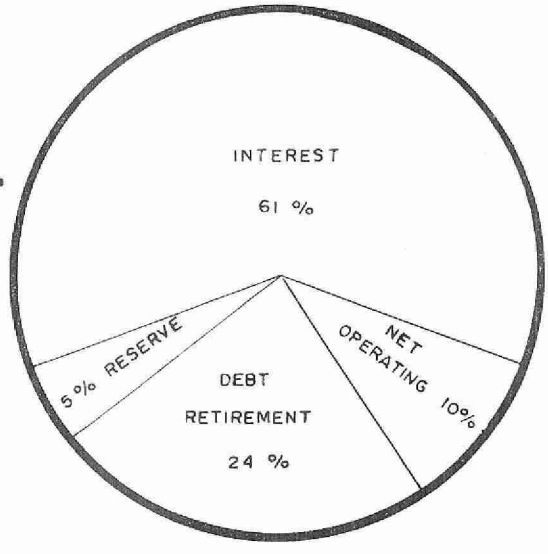
Monthly Operating Costs

MONTH	TOTAL	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY
JAN	1.50	-	-	-	-	1.50
FEB	299.85	298.35	-	-	-	1.50
MAR	12.37	-	1.37	-	-	11.00
APRIL	301.10	299.60	-	-	-	1.50
MAY	1.50	-	-	-	-	1.50
JUNE	50.11	-	-	17.35	-	32.76
JULY	83.22	23.10	-	-	49.86	10.26
AUG	-	-	-	-	-	-
SEPT	26.10	23.10	-	-	-	3.00
OCT	459.97	243.75	-	194.95	21.27	-
NOV	455.92	268.10	8.64	-	59.22	119.96
DEC	172.40	-	-	33.95	136.95	1.50
TOTAL	1864.04	1156.00	10.01	246.25	256.20	184.48

1968 OPERATING COSTS



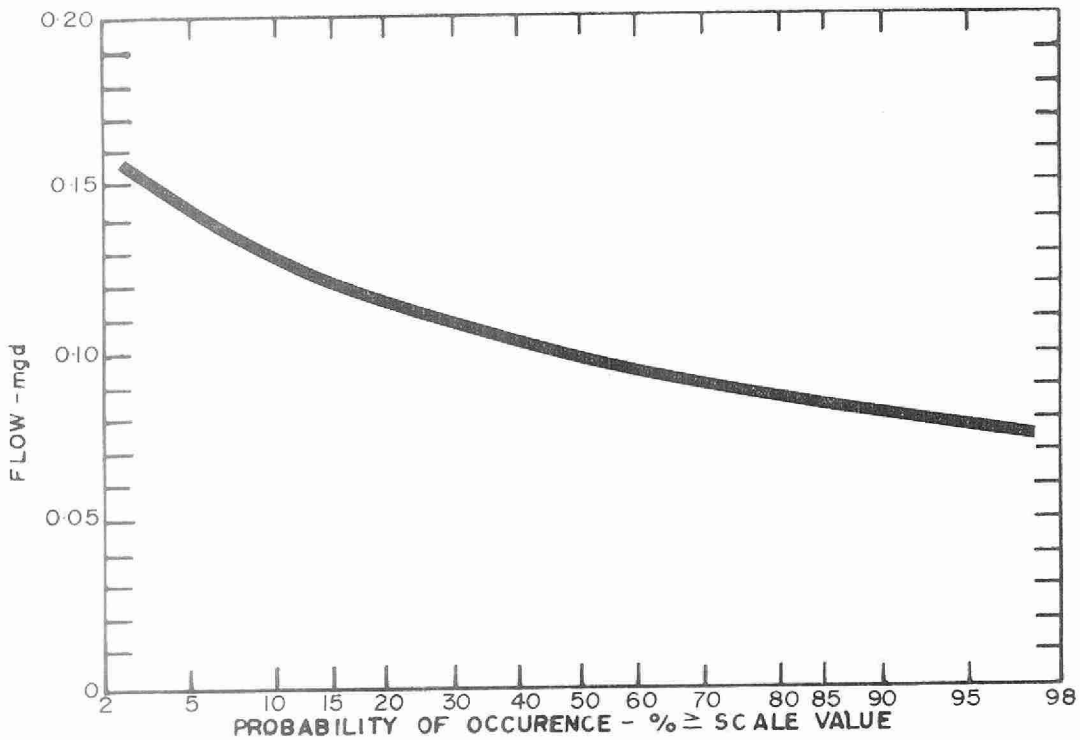
TOTAL ANNUAL COST



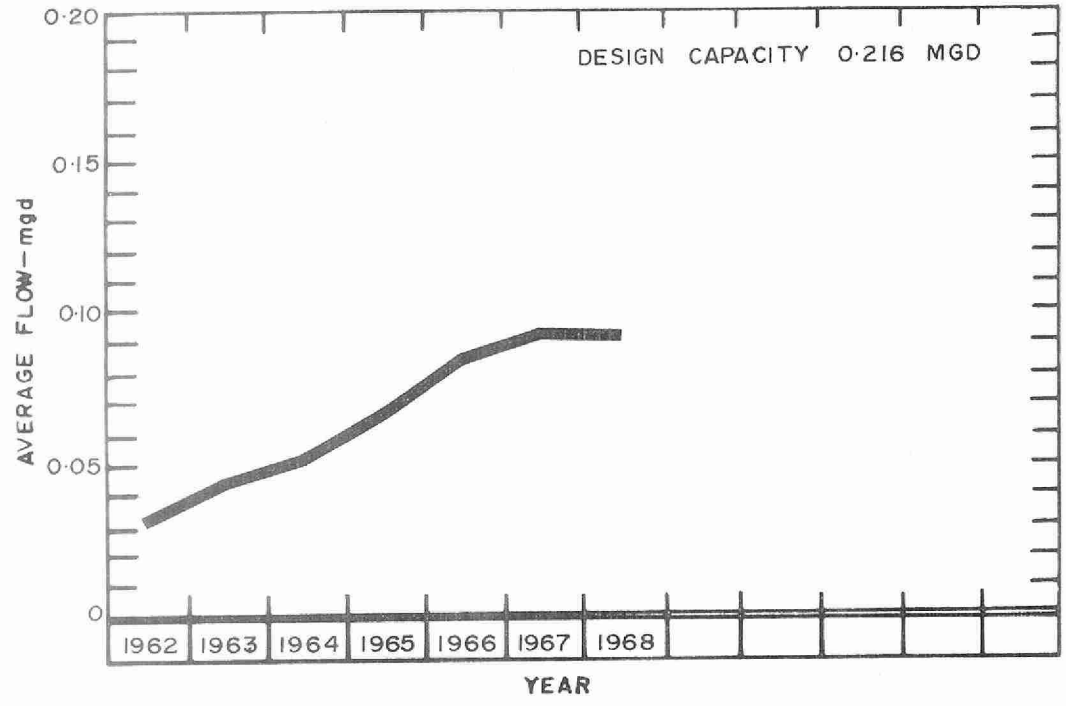
Yearly Operating Costs

YEAR	M.G. TREATED	TOTAL COST	COST PER THOUSAND GALLONS
1964	18.690	$ 515.00	$0.02
1965	23.713	923.00	0.04
1966	31.082	1236.00	0.04
1967	33.724	1152.00	0.03
1968	34.03	1864.00	0.05

Process Data


0·20
0·15
0·10
0·05
0
FLOW - mgd
2
5
10
15
20
30
40
50
60
70
80
85
90
95
98
PROBABILITY OF OCCURENCE - % ≥ SCALE VALUE

FLOWS


0·20
0·15
0·10
0·05
0
AVERAGE FLOW — mgd
DESIGN CAPACITY 0·216 MGD
1962
1963
1964
1965
1966
1967
1968
YEAR

FLOW DATA

Month	Total Flow (MG)	Avg. Daily Flow (MGD)	Max. Daily Flow (MG)	Min Daily Flow (MG)
January	3.00	0.10	0.14	0.07
February	2.86	0.10	0.13	0.07
March	2.78	0.09	0.14	0.05
April	2.65	0.09	0.13	0.05
May	2.82	0.09	0.15	0.06
June	2.85	0.10	0.14	0.05
July	3.97	0.13	0.19	0.06
August	3.03	0.10	0.15	0.07
September	2.55	0.09	0.11	0.07
October	2.54	0.09	0.11	0.07
November	2.52	0.09	0.11	0.05
December	2.46	0.08	0.10	0.05
Total	34.03	-	-	-
Average	2.84	0.09	-	-

CHLORINATION & DISINFECTION

MONTH	COLIFORMS				CHLORINE	
	RAW WATER		TREATED WATER		Total Used	Postchlor. Dosage
	No. of Samples Taken	Avg. Density No. /100ml	No. of Samples Taken	No. with Coliform 0/100ml	(lbs.)	mg/l
January	1	8	3	0	68.0	2.3
February	1	2	3	0	66.4	2.3
March	1	18	3	0	60.5	2.2
April	1	48	3	0	55.5	2.1
May	1	78	3	0	63.3	2.2
June	-	-	-	-	71.5	2.5
July	1	1000	3	0	92.9	2.3
August	1	72	3	0	72.9	2.4
September	1	134	3	0	67.9	2.7
October	1	8	3	0	56.0	2.2
November	-	-	-	-	50.8	2.0
December	1	6	3	0	44.3	1.8
TOTAL	10	-	30	0	770.0	-
AVERAGE	-	-	-	-	64.2	2.3

COMMENTS

Coliform organisms were effectively removed through treatment with chlorine. An average of 64.2 lbs. of chlorine was required each month. The average chlorine dosage rate was 2.3 mg/l.

WATER QUALITY

CHEMICAL PROPERTY	RAW WATER				TREATED WATER				DESIRABLE STANDARDS
	No. of Samples	Avg.	Max.	Min.	No. of Samples	Avg.	Max.	Min.	
HARDNESS mg/l $CaCO_3$	10	89	100	80	10	91	100	82	80-100
ALKALINITY mg/l $CaCO_3$	10	76	83	68	10	73	80	64	30-100
IRON mg/l Fe	10	0.24	0.41	0.05	10	0.18	0.37	0.04	$<$0.3
COLOUR Units	10	26	50	5	10	17	30	$<$5	$<$5
CHLORIDE mg/l Cl	3	3	4	3	10	5	6	5	$<$ 250

COMMENTS

The water supplied to the Marmora distribution system was moderately hard. Alkalinity, colour and chloride concentrations were satisfactory. Iron concentrations exceeded the desirable limit of 0.3 mg/l on occasion.

PROCESS CHEMICALS

MONTH	Diatomaceous Earth		Activated Carbon	
	lb. used *	Dosage mg/l	lb. used	Dosage mg/l
January	718	23.9	3	0.1**
February	586	20.5	13	0.4**
March	536	19.3	0	0
April	549	20.7	0	0
May	537	19.0	0	0
June	620	21.8	0	0
July	755	19.0	0	0
August	691	22.8	0	0
September	577	22.6	0	0
October	573	22.6	0	0
November	480	19.0	0	0
December	422	17.2	0	0
TOTAL	7044*	-	16	-
AVERAGE	587	20.7	8	0.3

* Excluding precoat
** When used

Water management in Ontario