Voucher No. 5198

CANADA

DEPARTMENT OF INDIAN AFFAIRS

To Keating & Wining Supplies Ltd.
Kenora
Ontario.

DATE		SERVICE	AMOUNT	
1937				
Jany.	15	To account rendered per Vouchers Aattached	90	15
		Repairing boiler and installing new gate valve as ordered by Boiler Inspector for boiler at the Cecilia Jeffrey Residential School		
		DUPLICATE FOR FILE 25.1.37 Voucher in duplicate detached for Accountant to pay.		
		Cecilia Jeffrey Residential School, allotment #2 sub. allot #243		
		TOTAL,		

I HEREBY CERTIFY that this Voucher is correct, that the material has been supplied, the work performed and that the charges are fair and just; also that the expenditure has been incurred legitimately and that each item of the same is a fair and just charge against the Government of Canada.

Rankdwards
Agent

FORM No. 506

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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ONTARIO

DEPARTMENT OF HEALTH
Division of Sanitary Engineering

Date March 19th, 1937

INSPECTION REPORT

Report to the Indian Agent, Capt. Frank Edwards.

Re- The Municipality of Protestant Indian School, Kenora. Cecilia Jeffrey Indian Residential School
City, Town, Village or Township.

Sir:

I have the honour to report that acting under the authority of the Provincial Department of Health of Ontario, I have made an examination into the water treatment for this municipality, and beg to advise that during the period ..... to ..... the municipality has used ..... lbs. of chlorine, and no lbs. are still in stock. except the balance of the contents of the cylinder now in use.

In the corresponding period -no meter- gallons of water have been pumped, representing an average treatment of ..... lbs. per million gallons.

Upon examination, I found the plant to be using chlorine at the rate of 0.75 lbs. per twenty-four hours or 0.62 p.p.m., which gave a residual chlorine, after fifteen minutes' standing, of trace p.p.m. Rate of Pumpage or Meter Reading at this time- 5000 g.p.m. hr. or 120,000 gallons per 24 hours.

It is recommended that the dosage be maintained, so as to show at all times a residual of 0.2 to 0.3 p.p.m., after fifteen minutes contact between the chlorine and the water.

Dosage adjusted to XXXXXXXXXXXXXX lbs. per 24 hrs. Residual XXXXXXXXXXXXXXXX p.p.m.
Operator was instructed to raise dosage until the recommended residual was reached.

I have the honour to be
Your obedient servant,

Lawrence A. Kay
Assistant Engineer.

Further recommendations
1. A spare cylinder of chlorine be kept on hand.
2. Arrangements be made to give the chlorinator an overhaul.

The recommendations contained in this report may be accepted as being given with authority of the Provincial Department of Health. It is requested that the recommendations be given immediate effect, and in case of a dispute or disagreement, that the recommendations be carried out and that the matter be referred directly to this office for adjustment.

B Mullin
Deputy Minister of Health.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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129-3-5

DEPARTMENT OF INDIAN AFFAIRS
CANADA

OFFICE OF
INDIAN AGENT

108-13

Kenora, Ontario.
March, 29th. 1937

APR 1 1937
RECORDS

R

Dear Sir:

Inclosed please find Inspection Report of the Cecilia Jeffrey Residential School which we have received from the Deputy Minister of Health.

You will note that a spare cylinder of chlorine be kept on hand, is recommended, and also that arrangements be made to give the chlorinator an overhaul.

We have no idea what the cost of this will be, but will be glad to have authority for the expenditure

Yours very truly,

Rank Edwards

Indian Agent.

The Secretary,
Indian Affairs Branch,
Department of Mines & Resources,
Ottawa, Ontario.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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129-3-5.

EX'D.

Ottawa, April 5, 1937.

Dear Sir:

With reference to your letter of the 29th ultimo, you may arrange for the purchase and delivery of an extra cylinder of chlorine to be kept on hand at the Cecilia Jeffrey Indian Residential School.

It is presumed that you can have the chlorinator overhauled by local workmen at a reasonable cost, and, if so, you may arrange to have this done.

Yours truly,

R. A. Hoey,
Supt. of Welfare & Training.

Frank Edwards, Esq.,
Indian Agent,
Kenora, Ont.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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Voucher No. 8362

CANADA

DEPARTMENT OF INDIAN AFFAIRS

To E. W. Byers, Esq, Principal,
Cecilia Jeffrey Residential School
Kenora, Ontario.

DATE		SERVICE	AMOUNT	
1937				
April	10	To allowance for Night Watchman at Cecilia Jeffrey Residential School for quarter ending March, 31st. 1937 3 months at $30:00	90	00
		Cecilia Jeffrey Residential School allotment #2 sub allot 250		
		Authority Dept letter 129-3-5 October, 6th. 1936		
		TOTAL,		

TRIPLICATE FOR FILE
16.4.37
Voucher in duplicate detached
for Accountant to pay.

I HEREBY CERTIFY that this Voucher is correct, that the material has been supplied, the work performed and that the charges are fair and just; also that the expenditure has been incurred legitimately and that each item of the same is a fair and just charge against the Government of Canada.

Frank Edwards
Agent

FORM No. 506

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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129-3-5

CANADA

Letter No. 110

Department of Mines & Resources
Indian Affairs Branch
APR 14 1937
RECORDS

Office of the Kenora, Ontario. *Indian Agency,*

April, 10th. *1937*

Sir,

I enclose herewith Vouchers Nos. 8362,

amounting to $ 90:00 *in favour*

of E.W.Byers, Esq. Principal, Cecilia Jeffrey Residential Schoo
Kenora, Ont.

for allowance for Night Watchmanat Cecilia Jeffrey Residential
School for quarter ending March, 31st. 1937.

This expenditure was authorized by Departmental

Letter No. 129-3-5 *dated* October, 6th. 1936

Your obedient servant,

Laurie Edwards

Indian Agent.

The Secretary,
Department of Indian Affairs,
Ottawa.

Form No. 101

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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Mr. Dudley
Shall I thank?
What do you report? [illegible]

129-3-5
108-13.

Department of Mines & Resources
Indian Affairs Branch.
APR 14 1937
RECORDS

DEPARTMENT OF INDIAN AFFAIRS
CANADA

OFFICE OF
INDIAN AGENT

Kenora. Ontario.
13th April, 1937.

Superintendent of Welfare and Training.
Indian Affairs Branch.
Department of Mines and Resources.
Ottawa. Ont.

F

Dear Sir,

Reference your letter 129-3-5 of 5th instant, re chlorination plant at the Cecilia Jeffrey Indian Residential School.

There are no local men in Kenora who could overhaul the chlorinator, so I wrote to the firm in Winnipeg, who supplied it, Messrs Wallace and Tiernan Limited, and they reply that their District Manager will be making a trip here around the latter part of June, and he will be pleased to make a trip to the school at that time to check over the equipment,

On discussing the matter with the Principal of the school he informs me that this is too long to wait for overhauling, as something might go wrong at any time, in view of the report of the Engineer of the Ontario Department of Health.

Under the circumstances I shall be glad to know if you think we should ask Messrs Wallace and Tiernen Ltd, to send a man down from Winnipeg at once to make the examination, or leave it until the regular trip of the District Manager in June.

Yours faithfully,

Frank Edwards

Indian Agent.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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129-3-5

DEPARTMENT OF INDIAN AFFAIRS
CANADA

April 19, 1937.

Memorandum:

Mr. Phelan.

With reference to Mr. Edwards' letter of the 13th instant regarding the Chlorination plant at the Cecilia Jeffrey Indian Residential School, in my opinion a man should be sent immediately from the Wallace and Tiernen Company to make an examination of this plant.

J. E. Dudley.

Architect.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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129-3-5

H.Q.D.

Ottawa, April 21, 1937.

Dear Sir,-

With reference to your letter of the 13th instant, you may arrange to have the representative of Messrs. Wallace & Tiernen Company visit the Cecilia Jeffrey Indian Residential School and report regarding the chlorination plant. Full particulars regarding the plant and an estimate of the cost of any repairs required should be supplied to the Department but no repairs should be made without first receiving our approval.

Yours truly,

R. A. Hoey,
Supt. of Welfare & Training.

Frank Edwards, Esq.,
Indian Agent,
Kenora, Ont.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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C.D. 1R

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FULL RATE		FULL RATE	
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NIGHT LETTER	NL	DEFERRED	LC
NIGHT TELEGRAM	NM	NIGHT CABLE LETTER	NLT

W. D. NEIL, GENERAL MANAGER OF COMMUNICATIONS, MONTREAL.

STANDARD TIME

1937 MAY 6 PM 8 56

RAA317 49 COLLECT NL

KENORA ONT 6

SECTY INDIAN AFFAIRS BRANCH

DEPT MINES AND RESOURCES OTTAWA

REFERENCE YOURS TWENTY FIRST APRIL CHLORINATOR AT CECILIA JEFFREYS SCHOOL BEYOND REPAIR WALLACE AND TIERNAN WILL SUPPLY NEW SEMI AUTOMATIC SIMILAR TO PRESENT ONE FOR SEVEN HUNDRED AND EIGHTY DOLLARS INSTALLED THIS INCLUDES TRADE IN ON OLD MACHINE DOCTOR REPORTS WATER UNFIT WITHOUT CHLORINATION PLEASE WIRE AUTHORITY RUSH

FRANK EDWARDS

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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T.D. 2 D

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DAY LETTER

Night letter.

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TIME FILED

CHECK

(Printed in Canada)

W. D. NEIL, General Manager of Communications, Montreal.

Send the following message, subject to the terms on back hereof, which are hereby agreed to.

Night Lettergram.

May 7, 1937.

Frank Edwards,
Indian Agent,
Kenora, Ont.

Retel sixth previous reports suggest overhaul only. Stop. Full report from Wallace and Tiernan as to reasons for condemning present chlorinator required before consideration given your request.

T.R.L. MacInnes.

Chg. I. A.

TRLM

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

C.N.T. 6296
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PRINTED IN CANADA

CLASS OF SERVICE | SYM
Full-Rate Message
Day Letter
Night Message
Night Letter

If none of the three symbols appears after the check (number of words) this is a full-rate message. Otherwise its character is indicated by the symbol appearing after the check.

ORIGINAL OF MESSAGE

Telephoned

TO BE

129-3-5

NATIONAL TELEGRAM

D. E. GALLOWAY, ASSISTANT VICE-PRESIDENT, TORONTO, ONT.

Exclusive Connection with WESTERN UNION TELEGRAPH CO.
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MOA173 62 DL STANDARD TIME 1937 MAY 8 PM 12 58

WINNIPEG MAN 8 1118A

SECRETARY INDIAN AFFAIRS

CARE DEPT OF MINES AND RESOURCES OTTAWA ONT

WIRING AT EDWARDS REQUEST STOP KENORA INDIAN SCHOOL CHLORINATOR BEYOND REPAIR DUE TO SAFETY PLUG ON CHLORINE CYLINDER BLOWING OFF IN SAME ROOM AS CHLORINATOR IN NINETEEN THIRTY CAUSING CORROSION WHICH HAS CAUSED THE EQUIPMENT TO DETERIORATE BESIDES THE WEAR AND TEAR DURING EIGHT YEARS OPERATION STOP COST OF REPAIRS WOULD BE APPROXIMATELY SAME AS NEW EQUIPMENT STOP TRADE IN ALLOWED

STOMER

WALLACE & TIERNAN LTD.

Library and Archives Canada / Bibliothèque et Archives Canada
www.collectionscanada.gc.ca

129-3-5

EXD.

May 13, 1937.

Memorandum:

The Deputy Minister.

It has been reported to the department that the Chlorinator at the Cecilia Jeffrey Indian Residential School at Kenora, Ont. is beyond repair and that a new plant should be installed.

The Wallace and Tiernan Co., Ltd., of Winnipeg, who furnished and installed the existing plant, were asked to examine this Chlorinator and furnish a report as to whether same could be overhauled and put in good working order. They report as follows:-

"Kenora Indian Residential School Chlorinator beyond repair due to safety plug on Chlorine cylinder blowing off in same room as Chlorinator in 1930 causing corrosion which has caused the equipment to deteriorate besides the wear and tear during eight years operation. Cost of repairs would be approximately the same as new equipment. Trade in allowed customer."

In view of this report I would ask you to kindly arrange for the purchase of a new semi automatic Chlorinating Plant similar to the existing one.

The Agent reports that the cost of this plant will be $780.00 installed, which amount includes the trade in on the old machine.

Immediate action in this regard would be appreciated as the doctor reports that the water is unfit for use without the Chlorinator. Funds are available for this purchase in the Vote for Indian Education, Vote 169.

For Director of Indian Affairs.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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EXTRACT
ORIGINAL ON
21-129

129-3-5

20

Kenora, Ontario, April 30th, 1937.

Dear Sir:

Inclosed please find Diary for the month of April, Kenora Agency.

At the beginning of the month we received complaints that the meals at the Cecilia Jeffrey Residential school were not as should, be, so a visit was paid to that school, accompanied by Councillor Albert Kent and other Indians. The evening meal was inspected and no cause for complaint was found.

x x x

Frank Edwards
Indian Agent.

Department of Mines & Resources
Indian Affairs Branch
MAY 13 1937
RECORDS

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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129-3-5

DEPARTMENT OF INDIAN AFFAIRS
CANADA

108-13

OFFICE OF
INDIAN AGENT

Kenora, Ontario.
May, 13th. 1937

Department of Mines & Resources
Indian Affairs Branch.
MAY 15 1937
RECORDS

Department of Mines & Resources
Indian Affairs Branch.
MAY 15 1937
RECORDS

Dear Sir:

Reference the Chlorinator at the Cecilia Jeffrey Residential School. On receipt of your wire we phoned Wallace & Tiernan by long distance, asking them to wire you direct the reason the Chlorinator was beyond repair.

We have received a copy of their reply to you which explains the matter fully.

We shall be glad if you will wire instructions to us as the Doctor has tested the water which is very poor, without the Chlorination, and something must be done immediately to prevent an outbreak of disease,

Yours very truly,

Frank Edwards

Indian Agent.

The Secretary,
Indian Affairs Branch,
Department of Mines & Resources,
Ottawa, Ontario.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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KODAK SAFETY ▲ FILM +●

Mr. Dudley -

Please note agent's letter.

D.P.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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WALLACE & TIERNAN LIMITED
CHLORINE CONTROL AND CHEMICAL FEED DEVICES
HEAD OFFICE & FACTORY, TORONTO

WINNIPEG OFFICE:
201 BANK OF HAMILTON BUILDING

Mr. Frank Edwards, Continued,

Chlorinator would be $1,041.05 f.o.b. Kenora, subject to the terms noted below. A trade-in allowance on your old equipment of $275.00 would bring the price down to $766.05.

Attached you will find our Technical Publication No. 74, which illustrates and describes the equipment upon which we have quoted, with the exception that this machine is manual whereas we have quoted on semi-automatic equipment. The semi-automatic feature is not shown on this publication; you will note also that this equipment is now CANADIAN MADE.

If we can be of further service, do not hesitate to write us, and in the meantime we will look forward to receiving your valued business.

Yours very truly,

WALLACE & TIERNAN LIMITED

H. C. Lindsten
District Manager

HCL:GMH

P.S. The above prices include supervision of installation by a W&T Engineer.

H. C. L.

This quotation is subject to thirty days acceptance and to our usual terms of payment; net cash thirty days from date of invoice; title to remain in us until the equipment is paid for in full.

Wallace & Tiernan Ltd. warrant for a period of one year after shipment that the apparatus shipped, of our manufacture, is free from defects in workmanship and materials, but its liability is limited to the replacement f. o. b. Toronto, of the defective parts thereof.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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WALLACE & TIERNAN LIMITED
CHLORINE CONTROL AND CHEMICAL FEED DEVICES
HEAD OFFICE & FACTORY, TORONTO

WINNIPEG OFFICE:
301 BANK OF HAMILTON BUILDING

May 24, 1937

Mr. Frank Edwards,
Indian Agent,
Kenora, Ontario

Re Cecilia Jeffrey Indian School.

Dear Mr. Edwards:

We wish to confirm our verbal quotation which we recently gave you on a new type S.A.S.P.M. Chlorinator, and allowing you to trade in your old equipment.

Before quoting, however, we would like to mention that we agree with you regarding the condition of the equipment, and that it has not received the kind of care it requires. You will also recall in 1930 that there was a cylinder of chlorine which developed a very serious leak at the fusible plug, which caused considerable damage to the equipment in the pumphouse. We must also consider the wear and tear the equipment has received during the past eight years.

The reason we strongly recommend that you replace your present machine with a new one is that it would cost just as much to have this old chlorinator rebuilt as a new one, considering the trade-in allowance on your old machine, and we believe this procedure would be the wisest plan.

We are pleased to quote you on one only S.A.S.P.M. Chlorinator for the sum of $1,054 f.o.b. Kenora, Express charges included, and subject to the terms noted below. We are prepared to give you $275.00 on your old equipment, which would bring the price down to $779.00 f.o.b. Kenora.

If the Department of Indian Affairs would prefer to have this equipment sent by freight our quotation on one S.A.S. P.M.

This quotation is subject to thirty days acceptance and to our usual terms of payment; net cash thirty days from date of invoice; ti
remain in us until the equipment is paid for in full.
Wallace & Tiernan Ltd. warrant for a period of one year after shipment that the apparatus shipped, of our manufacture, is fre
defects in workmanship and materials, but its liability is limited to the replacement f. o. b. Toronto, of the defective parts thereof.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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129-3-5

108-13.

Schools

DEPARTMENT OF INDIAN AFFAIRS
CANADA

OFFICE OF
INDIAN AGENT

Kenora. Ontario.
15th May, 1937.

Department of Mines & Resources
Indian Affairs Branch.
MAY 17 1937
RECORDS

The Secretary.
Indian Affairs Branch.
Department of Mines and Resources.
Ottawa. Ont.

Dear Sir,

Reference the Chlorinator at the Cecilia Jeffrey Indian Residential School, which has broken down entirely.

I enclose herewith report from Messrs Wallace and Tiernan who installed the original one, giving quotation, and reasons why in their opinion the old one is of no furthur use without aonsiderable expenditure.

I shall be glad if you will give instructions direct to Messrs Wallace and Tiernan Limited, Winnipeg or through Inspector A. G. Hamilton, as to what you wish done, as I am now on Treaty payments and not in the office very much until after the 24th June.

This is a very important matter that should be attended to at once as the Medical Health Officer, Dr ferguson, our own Doctor, has had the water tested and it is dangerous without boiling or chlorination, and owing to the number of pupils at the school, it is difficult to boil enough water for their needs, without considerable inconvenience.

Yours faithfully,

Frank Edwards

Indian Agent.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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REPLY TO
THE DEPARTMENTAL PURCHASING
AGENT

WMB/ GEA

CANADA

DEPARTMENT
OF
MINES AND RESOURCES
GENERAL ADMINISTRATIVE OFFICES

PLEASE QUOTE

FILE No. .....
129-3-5

OTTAWA. May 19, 1937.

Memorandum:

Dr. H.W.McGill.

With reference to your memorandum of the 13th instant, respecting replacement of the chlorination plant at the Cecilia Jeffrey Indian Residential School at Kenora, Ontario, it is suggested that you secure immediately, through your local officers at Kenora, or Winnipeg, quotations from the Power and Mine Supply Company, 123 Princess Street, Winnipeg, Wallace and Tiernan Company, Ltd., Winnipeg, and Canadian Fairbanks Morse Company, Ltd., Winnipeg, and advise the department by wire as to the tenders received. The lowest satisfactory tender will, of course, be accepted.

W. M. Bailey
Departmental Purchasing Agent.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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Form 6102

CLASS OF SERVICE DESIRED	
FULL-RATE MESSAGE	
DAY LETTER	X
NIGHT MESSAGE	
NIGHT LETTER	

PATRONS SHOULD MARK AN X OPPOSITE THE CLASS OF SERVICE DESIRED; OTHERWISE THE MESSAGE WILL BE TRANSMITTED AS A FULL-RATE TELEGRAM

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D. E. GALLOWAY, Assistant Vice-President, Toronto, Ont.

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Send the following message, subject to the terms on back hereof, which are hereby agreed to

May 19, 1937.

A. G. Hamilton,
Inspector of Indian Agencies,
Winnipeg, Man.

Obtain and wire price for new Chlorinator for Cecilia Jeffrey School from the Power and Mine Supply Co. and Canadian Fairbanks Morse of Winnipeg. Stop. Plants quoted on to be similar and equal to that figured on by Wallace and Tierman. Stop. Also advise trade-in allowance on present Chlorinator.

T.R.L. MacInnes.

Chg.
Mines and Resources,
Indian Affairs Branch.

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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Form 6100

CLASS of SERVICE DESIRED	
Day Message	
Day Letter	X
Night Message	
Night Letter	

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RECEIVER'S No.	TIME FILED	CHECK

Send the following message, subject to the terms on back hereof, which are hereby agreed to

May 8, 1937

MAY 10 1937 RECORDS

Secretary, Indian Affairs,
c/o Dept. of Mines and Resources,
Ottawa, Ontario

WIRING AT EDWARDS REQUEST STOP KENORA INDIAN SCHOOL CHLORINATOR BEYOND REPAIR DUE TO SAFETY PLUG ON CHLORINE CYLINDER BLOWING OFF IN SAME ROOM AS CHLORINATOR IN NINETEEN THIRTY CAUSING CORROSION WHICH HAS CAUSED THE EQUIPMENT TO DETERIORATE BESIDES THE WEAR AND TEAR DURING EIGHT YEARS OPERATION STOP COST OF REPAIRS WOULD BE APPROXIMATELY SAME AS NEW EQUIPMENT STOP TRADE IN ALLOWED CUSTOMER

Wallace & Tiernan Limited

CHARGE:
Wallace & Tiernan Limited,
301 Hamilton Bldg.,
Winnipeg, Manitoba

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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WALLACE & TIERNAN LIMITED

Manufacturers of Chlorine and Ammonia Control Apparatus

Head Office and Factory

Winnipeg — **Toronto, Ontario** — Montreal

W & T Semi Vacuum Chlorinator Type MSP—M

Technical Publication 74

CHLORINATION OF SMALL WATER SUPPLIES

Type MSP and MSPM Chlorinator

Liquid Chlorine is the cheapest and most efficient agent for the sterilization of drinking water, and for the disinfection of sewage and the sanitation of swimming pools. Applied in minute amounts, it will absolutely destroy any disease germs that may be in a water supply. Its use will completely eliminate drinking water as an agent in the transmission of typhoid fever, dysentery or similar diseases.

Every water supply should be sterilized. A supply continuously subject to pollution is often less dangerous than one subject to only occasional pollution, because with the first the city or provincial health authorities insist on proper purification. Many of the most severe typhoid fever epidemics of the present day are the result of the chance pollution of water supplies ordinarily considered excellent. The effluent of filter plants should be sterilized as an additional safeguard. Chlorination sterilizes 100,000 gallons of water for three cents or less. Liquid chlorine is safeguarding the supplies of over 8,500 municipalities aggregating six billion gallons of water a day. It furnishes the cheapest health insurance in the world. "The only safe water is a sterilized water."

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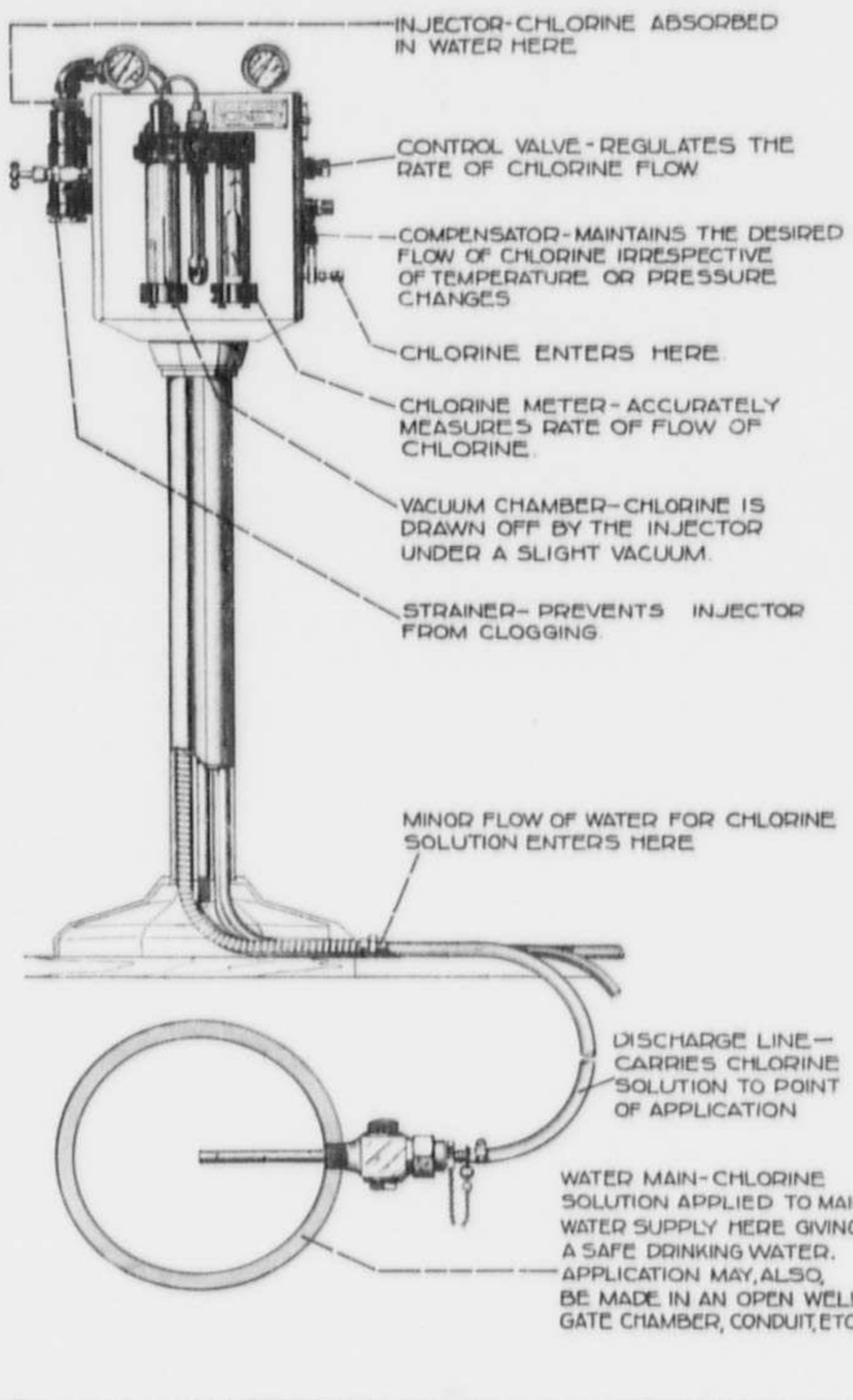

Manual Control Chlorinator Solution Feed Type MSP and MSPM

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W & T Apparatus for Small Communities

The majority of water supplies are those of less than one million gallons per day, and therefore can usually be sterilized with less than five pounds of liquid chlorine. To efficiently apply chlorine in such small amounts our Manually Controlled Solution Feed Type MSP or MSPM chlorinator has been developed. Where water pressure is available for operation, solution feed Chlorination is far superior to the direct application of chlorine gas. It gives better diffusion of the sterilizing solution in the water being treated. It results in greater efficiency, substantial saving in chlorine and better operating conditions, especially in winter months. The primary aim has been to produce a machine which will not only accurately control the very small amount of chlorine necessary but will also be of such simple construction as to be readily understood by the practical water works man. The operation of this equipment is explained by the drawing.

The capacity of Type MSP or MSPM apparatus varies from a minimum of .05 lbs. per 24 hrs. (.000000579 lbs. per second) to a maximum of 10 lbs. of chlorine per 24 hours. The amount of chlorine required to sterilize water depends on the bacterial, physical and chemical characteristics of the supply in question. This apparatus is applicable to water supplies as small as ten thousand gallons per twenty-four hours, and up to one million gallons per twenty-four hours, and may be used on supplies as large as two million gallons if the chlorine requirements of the water supply total less than ten pounds in twenty-four hours.

Over 16,000 installations of "W&T" chlorine control equipment have been made throughout the world. Approximately 8,500 Canadian and American municipalities chlorinate their drinking water supplies with our equipment. Over 80% of the population of North America drink chlorinated water. It is estimated that this is equivalent to over 6,000,000,000 gallons of water per 24 hours—or the flow over Niagara Falls for an hour and a half.

Over half of these installations are on water supplies of cities of less than 10,000 population.

Practically every city of importance in Canada and the United States, and many cities in foreign countries now use "W&T" apparatus. Toronto, Ottawa, Hamilton, London, Windsor, Sarnia, Brockville, Kingston, Guelph, Chatham and Niagara Falls, Ontario; Quebec, Three Rivers, Lachine, Murray Bay, P.Q.; Edmonton, Alberta; Halifax, N.S.; Fredericton, N.B.; Regina; Moose Jaw and Saskatoon, Saskatchewan; New York, Chicago, Philadelphia, Los Angeles, U.S.A.; London, England; Durban, South Africa; Melbourne, Australia; Lima, Peru; Buenos Aires, Argentina; Havana, Cuba; Shanghai, China; and Kyoto City, Japan, use "W&T" apparatus to protect their water supplies.

Our large staff of experienced, trained field representatives, specialize in the purification of water and sewage. We are prepared to study any problems covering the field of chlorine control apparatus. A data sheet will be provided on request, enabling you to conveniently forward us the information we require in making specific recommendations on problems covering the sterilization of drinking water supplies, the sanitation of swimming pools, or the disinfection of sewage or we will be glad to have one of our field staff call to see you.

An opportunity to study your problems and supply you with chlorine sterilizing equipment will meet with prompt and efficient response.

The Operation of the Chlorinator

The MSP and MSPM Chlorinator is designed to meet the varied requirements of the average small water works. With the Type MSP Chlorinator the chlorine solution is applied into the pump suction well or gate chamber. With the Type MSPM the point of application will be in the suction main or pipe line. Pressure application as well as gravity feed of the chlorine solution is possible it being only necessary that a water supply under sufficient pressure be available for operation.

The minimum water pressure required for a gravity feed installation is ten pounds. Where chlorine solution must be applied against pressure, the water supply for operating the chlorinator must be under at least three times the pressure existing at the point of application. The quantity of water required will usually vary from one to not over three gallons per minute. In those cases where a water supply under the pressure necessary to operate the chlorinator is not available, a pumping unit operated either by electric or hydraulic power is used.

The chlorine gas after passing through the pressure compensator, where the pressure is reduced, is measured by a volumetric meter clearly visible and always accurate. After leaving the meter jar the chlorine passes through the suction chamber to the injector where the solution of chlorine and water is formed. It then flows directly to the point of application.

Reliefs are provided on the machine which prevent moisture being drawn back into the chlorine gas control parts of the equipment, and also prevent the escape of chlorine gas into the room in the event of accidental failure of the water supply to the equipment.

This equipment is ideally suited for swimming pool sanitation where the point of application is generally in the filter effluent line. It is also adaptable to the small sewage disposal plant. The attention of engineers and architects is drawn to the stability of the equipment and the accessibility of all parts. The equipment can be erected at any convenient point in

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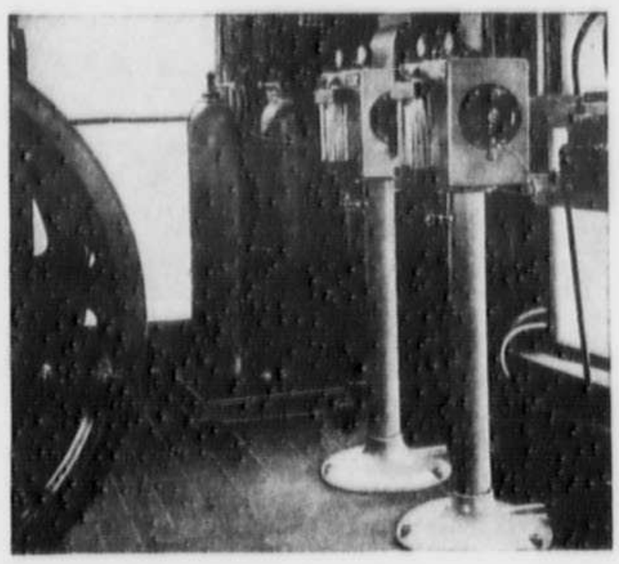

DUPLICATE INSTALLATION TYPE MSP CHLORINATOR

Public Health and Water Works Officials recognize the need and value of duplicate chlorinating equipment and for practically all modern water plants multiple chlorinator units are specified.

the plant with a minimum of labor since no preliminary foundations or mountings are required. The room in which the equipment is located must be kept at a temperature above 50° F.

Detailed Specifications

WALLACE & TIERNAN MANUAL CONTROL CHLORINATOR
SOLUTION FEED TYPE MSP AND MSPM

TYPE:
The Type MSP and MSPM Chlorinator is semi vacuum in principle in that the pressure of the chlorine gas is reduced to practically atmosphere by means of the chlorine pressure compensator and the meter chamber and injector suction chamber are maintained under a partial vacuum by means of the suction produced by the chlorine injector.

MOUNTING AND ARRANGEMENT:
The Chlorinator is arranged as a complete unit mounted on a suitable pipe pedestal with substantial base and with the control equipment assembled on a cast iron cabinet. It is so arranged that the water supply lines run through the pipe pedestal and the discharge and relief lines may be run in the same manner to improve the general appearance of the installation.

CAPACITY:
The Chlorinator can be equipped with two types of volumetric meter, i.e., a pulsating meter capable of a maximum rate of 10 lbs. of chlorine per 24 hours and a minimum rate of .5 of a lb. per 24 hours, or a bubbling type meter capable of a maximum rate of 1.2 lbs. of chlorine per 24 hours and a minimum rate of .05 of a lb. per 24 hours.

ACCURACY OF CHLORINE FLOW METER:
The chlorine flow meter on the apparatus will not show a greater variation than 4% from the true delivery of chlorine on all flows within the working range of the meter.

CONTROL PARTS:
All control parts of the apparatus are constructed of materials especially adapted for chlorine control. They are easily accessible for inspection, particularly the regulating valves and flow meter through which the gas is measured. All chlorine tubing is seamless and tested for chlorine under pressure. The connection from the pressure compensator to the meter head is of special silver tubing. All permanent joints are set in special cement and all union connections are provided with special gaskets resistant to chlorine.

CONNECTIONS:
Suitable connections are furnished to allow the apparatus to be used with standard 100 or 150 lb. chlorine containers (or with 20 lb. chlorine containers when used for swimming pools).

CHLORINE PRESSURE COMPENSATOR:
This valve serves to reduce the pressure of the gas and to maintain the flow constant regardless of changes in pressure within the chlorine containers.

CHLORINE METER CHAMBER:
The chlorine meter chamber housing the chlorine flow meter is of glass and so arranged that the water level is automatically maintained at its proper height. The connections and parts are of materials to resist corrosion by chlorine solution.

VACUUM RELIEF:
The apparatus is equipped with a vacuum relief seal so arranged that water will not be drawn back into the compensating valve.

CHLORINE INJECTOR AND CHECK VALVE:
The chlorine injector is water operated and is constructed of materials resistant to the action of moist chlorine. It takes its suction from the injector suction chamber and discharges the chlorine solution to the point of application. The injector is equipped with a chlorine resistant ball check valve on the suction side to prevent water discharging back through the apparatus in case of failure of the water supply to the equipment or in the event of stoppage in the injector discharge line.

INJECTOR SUCTION CHAMBER:
The injector suction chamber is so arranged that the injector draws make-up water along with the chlorine being metered, thus maintaining a definite vacuum on the system. This chamber is also equipped with a pressure relief so that the gas will be relieved to the outside atmosphere in case of failure of the water supply to the apparatus. All metal parts within the injector suction chamber as well as the connection from the chamber to the injector are of pure silver.

CONSTANT LEVEL SUCTION BOX:
A constant level box is provided to supply water to the meter chamber and to the suction side of the injector through the injector suction chamber.

CHLORINE SOLUTION LINE:
The line which carries the chlorine solution from the machine to the point of application is of special W&T chlorine resistant rubber tubing.

CHLORINE SOLUTION CONNECTION TO MAIN:
(Used only with Type MSPM)
Where the point of application is in a main the connection is made through a corporation cock and the chlorine solution enters through a silver tube which can be inserted or withdrawn and disconnected while the main is under pressure.

AUXILIARY PARTS:
There is provided with the apparatus one auxiliary tank valve, two flexible tank connections, union wrenches, one set of special gaskets of assorted sizes, one duplicate chlorine flow meter, one duplicate glass chamber, duplicate glass parts for vacuum relief seal, one compensator by-pass connection, one electric heater for compensator and one book of instructions.

WARRANTY:
Wallace & Tiernan Co., Ltd., warrant for a period of one year after shipment that the apparatus and all of its parts are free from defects in workmanship and materials but its liability is limited to the replacement f.o.b. Toronto, Ont., of the defective parts thereof.

MEASUREMENTS:
Height 68 in., width 20 in., depth 20 in., shipping weight 400 lbs.

WALLACE & TIERNAN LIMITED

Manufacturers of Chlorine and Ammonia Control Apparatus

Toronto, Ontario

Printed in Canada

Indian Affairs. School Files.
(RG 10, Volume 6188, File 461-5, part 6)

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BELL'S GAS CHLORINATION PLANT

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FOR WESTERN CANADA
POWER & MINE SUPPLY CO., LTD.
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BELL BROTHERS (Manchester 1927) LTD.
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CHLORINATION OF WATER
for
INDUSTRIAL AND PUBLIC SUPPLY
SWIMMING BATHS, ETC.

BELL BROTHERS (Manchester 1927) LTD.

Manufacturers of *Bell's Patent Pressure Filters ; Gravity Filters ; Water Softening Plants ; Filtration, Aerating and Heating Apparatus for Public Baths ; Plants for the Extraction of Grease and Oil from Boiler Feed Water ; Small Type Filters for Villages, Mansions, Institutes ; Chlorinating Plants, etc.*

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Introduction

ADAPTABILITY to the changing conditions of life, to the demand for pure water for domestic and industrial purposes has been the cause of the development of Chlorination as a highly satisfactory means of sterilising water for varied purposes in a simple and economical manner.

The Bell Chlorinator, which is fully described in the following pages, is the outcome of a long experience in the treatment of impure waters of all kinds coupled with a technical engineering experience of over forty years' duration.

This apparatus has a high degree of efficiency as a sterilising agent, is adaptable for domestic water supplies; the Chlorination of Sewage Effluent, a means of treatment which is meeting with approval among many of the most eminent Sewage Engineers; the sterilisation of swimming bath water, a practice which, following the suggestions made by the Ministry of Health, is now almost universal. For industrial purposes it will do good work in the Paper Mill, Textile Work and in fact anywhere where a bacterially free water is required, particularly is it useful for the sterilisation of condenser cooling water.

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CHLORINATION OF WATER FOR INDUSTRIAL & PUBLIC SUPPLY

The provision of an adequate supply of sufficiently pure water is essential to the maintenance of life and the conduct of industry. It is, therefore, obviously impossible to exaggerate the importance of finding a solution to the difficulties with which the problem of such provision is beset.

Impurity in water may be organic or inorganic and, whether organic or inorganic, may occur either in suspension or solution.

Though many substances and various types of bacteria may be present without constituting any danger to health, the presence of pathogenic (*i.e.*, disease bearing) germs may render any water affected dangerous in the highest degree.

When present in water in such quantity as to be dangerous, inorganic impurity is often distinctly perceptible to the senses. For example, various salts render water "hard" and nauseating, and many of the iron compounds result in both obvious taste and colour.

In general, ground water taken from certain depths is sufficiently free from bacteria as a result of the natural filtration effected by its percolation through the ground, but surface water must always be looked upon with a degree of suspicion.

Most of the bacteriological contamination of water may be traced to human or other organic pollution, and it is obvious that water supply chiefly becomes a serious problem when numbers of human beings are congregated into a community.

More especially with industrial communities is the provision of an adequate supply of sufficiently pure water a complicated matter, although the nature of the problem may vary a little for wide ranges of populations.

As the water for purposes of domestic consumption has to conform to standards and fulfil requirements rather different from the standards and requirements which obtain in the case of the supply of water for technical and industrial purposes, it is obvious that the respective processes of water purification for these two purposes are best considered separately.

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