

Indian Affairs  
School Files

(RG 10, Volume 6453)

File 884-5, part 2	Kootenay Agency - Kootenay Residential School - Building Maintenance-Supplies-Accounts. 1924 - 1930
File 884-5, part 3	Kootenay Agency - Kootenay Residential School - Building Maintenance-Supplies-Accounts. (reports) 1930 - 1931
File 884-5, part 4	Kootenay Agency - Kootenay Residential School - Building Maintenance-Supplies-Accounts. 1931 - 1936
File 884-5, part 5	Kootenay Agency - Kootenay Residential School - Building Maintenance-Supplies-Accounts. 1936 - 1941
File 884-5, part 6	Kootenay Agency - Kootenay Residential School - Building Maintenance-Supplies-Accounts. 1941 - 1944

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**CANADA**

No. ~~155-0-5~~

VOL. 6

VOL. 5 CLOSED

INDIAN AFFAIRS BRANCH

DEPARTMENT OF MINES AND RESOURCES

884-5

KOOTENAI RESIDENTIAL SCHOOL

BUILDINGS, ACCTS. & ETC.

222094

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R. 1452

Indian Affairs (RG 10 Volume 6453, file 884-5, part 6)

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Victoria Public Bldg.,  
Victoria, B. C.  
August 22nd, 1941.

Mr. C. F. Dawson,  
Resident Architect, D.P.W.,  
Victoria, B. C.

Dear Sir:

Re: Engines in Power Plant  
Indian Residential School, Cranbrook, B. C.

The Gasoline Engine which was used to operate the lighting generator has been disconnected and a new Lister Deisel Engine installed in its place. This new engine is Lister - Size C.E. 24/17 - Serial 383580 - 16 H. P. at 1200 R.P.M. It is now in operation but will require much further work before the installation is complete.

The Petter Engine which was used to drive the Triplex pumps which supplied the School with fresh water and incidentally the fire service is out of commission and at present the pump is operated from the new Lister Engine by means of a counter shaft. This arrangement would be fairly satisfactory if it was properly installed but the shaft now in operation is made out of a piece of pipe and is very much out of line and when in operation constitutes a bad danger hazard.

I would suggest the following for consideration if the present type of installation is to be continued. Install ~~a proper steel shaft and cast-iron bearings and hanger brackets or, better still,~~ send the Petter engine to a reliable firm either at the Coast or Calgary, Alberta for a complete overhaul and reinstall it in its present position and keep the Lister for the Light Generator.

I remain,

Yours respectfully,

*T. J. Arnall*  
T. J. Arnall  
S.P.P. Engineer, D.P.W.



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Public Building,  
Victoria, B. C.

Date: August 22nd, 1941.

Mr. C. F. Dawson,  
Dist. Res. Architect,  
Dept. Public Works, Canada,  
Victoria, B. C.

Dear Sir:

I beg to report that I have inspected the Machinery owned by the DEPARTMENT of Mines & Resources, Indian Branch and located at Indian Residential School, Cranbrook, B. C. on the 21st day of July, 1941 and have found it in the following condition:

Fire Pumps: See report  
Condition:

Condensate Pumps: none  
Condition:

Boiler Feed Pumps: good  
Condition:

Stokers: none  
Condition:

Electric Lighting Plants: see report  
Condition:

Laundry Machinery: good  
Condition:

Steam Engines: none  
Condition:

Gasoline Engines: see report  
Condition:

Diesel Engines: see report  
Condition:

REMARKS:



*T. J. Arnall*

S.P.P. Engineer, D.P.W.

Indian Affairs (RG 10 Volume 6453, file 884-5, part 6)

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DEPARTMENT OF PUBLIC WORKS OF CANADA.

Certificate of Inspection of Steam Boiler.

This Certificate expires .. **July 20th, 1942** .....

I hereby certify that I have this day inspected  
the steam boiler Number: ... **44850** .....,  
of: .. **Indian Residential School, Cranbrook** .....,  
In the Province of: .. **British Columbia** ....., where  
**Mr. A. E. Townsend, Mechanic** ..... is in  
charge, and having carefully examined the said steam  
boiler have found the same in ... **good** .....  
condition, and, therefore, authorize a steam pressure  
of: .. **50 lbs.** ..... pounds per square inch and no  
more.

Dated this ... **21st** ..... day of ... **July, 1941** .....

Type of Boiler: ... **Vertical Tubular** .....,  
Size of Boiler: ... **42" x 27 1/2"** .....,  
Horse Power: ... **25.3** .....,  
When Manufactured: .. **September 17th, 1938** .....,  
Inspection No: ... **1941** .....

..... *T. J. Ansell* .....,  
S.P.P. Engineer, D.P.W.

This Certificate to be hung up in a conspicuous place  
in the boiler room.

**Safety Valve set at 50 lbs. on account of Drier.**



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*copy*

Public Building,  
Victoria, B. C.

Date: August 22nd, 1941.

Mr. C. F. Dawson,  
District Resident Architect,  
Dept. Public Works, Canada,  
Victoria, B.C.

Dear Sir:

I beg to report that I inspected Boiler No.: 44850  
on the 21st day of July, 1941, and have found it in  
the following condition:

Owned by the Department of: Mines & Resources, Indian Branch  
Located at: Indian Residential School, Cranbrook, B. C.  
Manufactured by: Vancouver Iron Works, Vancouver, B. C.  
Date: September 17th, 1938 H.P. 25.3 Size: 42" x 97½"  
Type: Vertical Tubular Condition of Plates: good  
Condition of Stays: none Condition of Rivets: good  
Condition of Tubes: scaling Working Pressure Allowed: 130 lbs.  
Safety Valves Set at: 50 lbs. Condition: Tight & works freely  
Hydrostatic Test: 200 lbs. Hammer Test: sound  
Deflection Test: normal Condition under Test: good  
Steam Valves: tight Feed Valves & Checks: tight  
Steam Gauge: 2 lbs. light Water Gauge: good  
Test Cocks: good Fusible Plug: to be renewed  
Blow-Off Cock: good Blow-down Pipe: good  
Side Walls: ) Not bricked. Bridges: ) Not bricked.  
Front Walls: ) Furnace plates Back Walls: ) Furnace plates  
Front Arches: ) exposed to fire. Back Arches: ) exposed to fire.  
Condition good. Condition good.  
Smoke Pipe & Breechings: good Firebars: good  
Stokers: none  
Amount of ~~coal~~ wood Used: no record Kind: Short lengths  
Quality: fair B.T.U. per lb. 4,000 to 5,000

REMARKS: Boiler scaling badly. Must be blown down once every two  
weeks and washed out and all scale removed particularly on tubes  
and wet legs.



*F. J. Arnall*  
S.P.P. Engineer, D.P.W.

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DEPARTMENT OF PUBLIC WORKS OF CANADA.

Certificate of Inspection of Hot Water Boiler.

This Certificate expires .....**July 20th, 1942**.....

I hereby certify that I have this day inspected the  
Hot Water Boiler Number **.1870.No..2.Right.Hand**.....  
of: **.Indian Residential School, Cranbrook**.....

In the Province of: **British Columbia**....., where

.....**Mr. A. E. Townsend**.....

.....**Mechanic**..... is in

charge, and having carefully examined the said Hot Water  
boiler have found the same in **...Fair**.....

condition, and, therefore, authorize a water pressure

of: **.....35**.....pounds per square inch and no

more.

Dated this **...21st**.....day of **July 1941**.....

Type of Boiler: **Horizontal Return Tubular**.....

Size of Boiler: **..54" x 10'**.....

Horse Power: **.60**.....

When Manufactured: **1913**.....

Inspection No: **..1941**.....

*T. J. Annall*  
.....**"T. J. Annall"**.....  
S.P.P. Engineer, D.P.W.

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Public Building,  
Victoria, B. C.

Date: August 22nd, 1941.

Mr. C. F. Dawson,  
District Resident Architect,  
Dept. Public Works, Canada,  
Victoria, B. C.

Dear Sir:

I beg to report that I inspected Boiler No.: 1870 No. 2 Right Hand  
on the 21st day of July, 1941, and have found it in  
the following condition:

Owned by the Department of: Mines & Resources, Indian Branch

Located at: Indian Residential School, Cranbrook, B. C.

Manufactured by: No Manufacturer's name stamped on plates.

Date: 1913 H.P. 60 Size: 54" x 10'

Type: Horizontal Return Tubular	Condition of Plates: fair
Condition of Stays: good	Condition of Rivets: good
Condition of Tubes: fair	Working Pressure Allowed: 35 lbs.
Safety Valves Set at: 35 lbs.	Condition: Tight & works freely
Hydrostatic Test: 60 lbs.	Hammer Test: sound
Deflection Test: normal	Condition under Test: tight
water	Feed Valves & Checks: tight
<del>Stream</del> Valves: tight	Water Gauge: none
pressure	Fusible Plug: none
<del>Stream</del> Gauge: correct	Blow-down Pipe: good
Test Cocks: none	Bridges: good
Blow-Off Cock: good	Back Walls: good
Side Walls: fair	Back Arches: good
Front Walls: fair	Firebars: taken out
Front Arches: fair	
Smoke Pipe & Breechings: poor	
Stokers: none	

Amount of <sup>wood</sup> ~~Coal~~ Used: no record

Quality: fair

Kind: Tamaric

B.T.U. per lb. 4,000 to 4,500

REMARKS:



*F. J. Small*

S.P.P. Engineer, D.P.W.

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DEPARTMENT OF PUBLIC WORKS OF CANADA.

Certificate of Inspection of Hot Water Boiler.

This Certificate expires ....**July 20th, 1942.**.....

I hereby certify that I have this day inspected the  
Hot Water Boiler Number ..**1869 No. 1 Left Hand**.....  
of: ...**Indian Residential School, Cranbrook**.....  
In the Province of: .....**British Columbia**....., where  
.....**Mr. A. E. Townsend**.....  
.....**Mechanic**..... is in  
charge, and having carefully examined the said Hot Water  
boiler have found the same in ..**fair**.....  
condition, and, therefore, authorize a water pressure  
of: ...**35**.....pounds per square inch and no  
more.

Dated this....**21st**.....day of ...**July, 1941**.....

Type of Boiler: .....**Horizontal Return Tubular**.....  
Size of Boiler: .....**54" x 10'**.....  
Horse Power: .....**60**.....  
When Manufactured: .....**1913**.....  
Inspection No: .....**1941**.....

.....*P. J. Arnold*.....  
S.P.P. Engineer, D.P.W.



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Public Building,  
Victoria, B. C.

Date: Aug. 22nd, 1941.

Mr. C. F. Dawson,  
District Resident Architect,  
Dept. Public Works, Canada,  
Victoria, B. C.

Dear Sir:

I beg to report that I inspected Boiler No.: 1869 No. 1 Left Hand  
on the 21st day of July, 1941, and have found it in  
the following condition:

Owned by the Department of: Mines & Resources, Indian Branch

Located at: Indian Residential School, Cranbrook, B. C.

Manufactured by: No Manufacturer's name stamped on plates

Date: 1913 H.P. 60 Size: 54" x 10'

Type: Horizontal Return Tubular	Condition of Plates: fair
Condition of Stays: good	Condition of Rivets: good
Condition of Tubes: fair	Working Pressure Allowed: 35 lbs.
Safety Valves Set at: 35 lbs.	Condition: Tight & works freely.
Hydrostatic Test: 60 lbs.	Hammer Test: Sound
Deflection Test: normal water	Condition under Test: good
<del>Steam</del> Valves: tight pressure	Feed Valves & Checks: tight
<del>Steam</del> Gauge: correct	Water Gauge: none
Test Cocks: none	Fusible Plug: none
Blow-Off Cock: good	Blow-down Pipe: good
Side Walls: fair	Bridges: good
Front Walls: good	Back Walls: fair
Front Arches: good	Back Arches: fair
Smoke Pipe & Breechings: poor	Firebars: taken out
Stokers: none	
wood	
Amount of <del>Coal</del> Used: no record	Kind: tamaric
Quality: Fair	B.T.U. per lb. 4,000 to 4,500

REMARKS:



*F. J. Small*

S.P.P. Engineer, D.P.W.

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INDIAN COMMISSIONER  
BRITISH COLUMBIA



CANADA  
DEPARTMENT  
OF  
MINES AND RESOURCES

155-0-5  
INDIAN AFFAIRS  
BRANCH

IN YOUR REPLY REFER TO  
NO. **15/5/4282.**  
ALSO TO DATE OF THIS LETTER



P. O. BOX 70  
VANCOUVER, B.C.

22nd Sept., 1941.

*[Handwritten signature]*  
Dear Sir:-

I beg to forward herewith Mr. T. J. Arnall's reports on his inspection on 21st July, 1941, of the heating unit and power plant at the Kootenay Indian Residential School, Cranbrook, B. C., together with copies of Certificates covering Boilers No. 1869 No. 1 Left Hand; No. 1870 No. 2 Right Hand, and No. 44850, at the above School.

With special reference to Mr. Arnall's observations, as contained in his letter of August 22nd (a copy of which is attached) on the engines comprising the power plant, I would draw the Department's attention to the contents of the Report on "Proposed Fire Protection and Repairs to Domestic Water Supply, St. Eugene Indian School, Kootenay Agency" by Mr. W. C. Warren, under date of June 29th, 1941, a copy of which has no doubt been supplied to the Department by the Surveys and Engineering Branch.

It would appear that, whatever work may be contemplated later, it is evident that a proper

The Secretary,  
Indian Affairs Branch,  
Dept. of Mines and Resources,  
OTTAWA, ONT.

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The Secretary.

22nd Sept., 1941.

-2-

overhead shaft with attachments should be installed in order that the existing domestic water pump may be successfully operated by the new Lister engine supplied by the Department for the operation of the electric lighting plant. The operation of the pump through the present temporary shafting is not only inefficient but is likely to cause undue wear on the new engine.

The Petter engine to which Mr. Arnall refers was supplied some time ago to operate the pumping plant. It was overhauled at considerable expense by the Cranbrook Foundry & Machine Shops (Mr. C. E. MacKinnon), Cranbrook, B. C. (see your letter No. 155-0-5 of August 24th, 1938, in this respect). The operation of this engine has not been satisfactory and, as it is not possible to use it in its present condition, I would recommend that this particular engine be examined and overhauled by a firm in this City having the necessary qualified mechanics and proper facilities for such work.

Yours faithfully,

*D. M. MacKay*

D. M. MacKay.  
Indian Commissioner for B. C.

*W. B. Bond  
recommends it*

*HN  
engine should  
be checked - ~~to see~~  
engine not  
proper condition*

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*POOR COPY*

Ottawa,  
October 1, 1941.

EXD.  
A.

AIR MAIL

Dear Sir:

I have your letter of the 22nd ultimo enclosing Mr. Arnall's reports with reference to the boilers at the Kootenay Residential School. You may arrange for the immediate installation of a proper steel shaft and cast-iron bearings and hanger brackets. This will permit the water pump being operated by the new Lister engine.

If the Petter engine can be placed in working condition at a reasonable cost you may make the necessary arrangements. Incidentally we were recently informed that the engineer at the Kootenay School had expressed the opinion that he could put this engine in running condition if supplied with a few parts. If this information is correct, it might be possible to save considerable expenditure.

I note you refer to Mr. Warren's report on proposed fire protection and repairs to the domestic water supply at the Kootenay School. The cost of the proposals made by Mr. Warren varies from \$5,300.00 to \$12,200.00. There are no funds available at the present time for carrying out any of Mr. Warren's proposals.

Yours truly,

  
Major D.M. MacKay,  
Indian Commissioner,  
P.O. Box 70,  
Vancouver, B.C.

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

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August 15, 1941.



Memorandum:

Mr. Wardle

Re: Water Supply, Kootenay Indian Residential School, (St. Eugene), Cranbrook, B.C.

In reference to your notation on Dr. McGill's memorandum to you of May 29th last regarding the possibility of providing fire protection at this school, attached hereto are two copies of Mr. Warren's report together with copies of Mr. Webb's explanatory letter of the 30th ultimo.

It will be noted that the present source of supply (springs) is not adequate for fire protection without storage and that Mr. Warren has advanced several proposals:

- (1) To build a pump house near St. Mary's river, install in it a new fire pump and engine, together with the pump now installed in the school and supply water for fire protection and domestic use through separate mains at an estimated cost of \$8,800.00.
- (2) When the present suction pipe and pressure tank require replacing, to eliminate the pressure tank, increase the pumping capacity to 100 gallons per minute and erect a 25,000 gallons high level storage tank, the pump to be installed in the building as at present, at an estimated cost of \$8,700.00.
- (3) To increase the present pumping capacity to 50 gallons per minute and install inside hydrant stacks, hose, etc., to afford a degree of fire protection at an estimated cost of \$1,200.00.

Proposal No.1 would provide 500 g.p.m. and the supply would be positive as the pump would not be affected by a fire in the school building. This is the most desirable of the proposals submitted and should be undertaken as soon as sufficient funds can be provided. If this is found to be impracticable at present, then consideration should be given to Proposal No.3, in which all expenditures, except the new oil engine, are common to all proposals.

Encl.

Respectfully submitted,

*T. S. Mills*Chief Engineer.  
*JTD*

J. M. Wardle, Esq.,  
Director,  
Surveys and Engineering Branch,  
Department of Mines and Resources,  
Ottawa,  
Ontario.

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WCW/GG

Vancouver, B. C.  
July 30, 1941.Sir: Fire Protection - St. Eugene School

With reference to report on the above subject by Mr. W.C. Warren, dated June 29th, there are several points I would like to clarify.

It is stated in the second paragraph on page 4 that a pumping plant from the St. Mary's river for fire protection purposes is estimated to cost \$8800. This pumping plant would include two sets of equipment, a pump for fire protection purposes having as a source the St. Mary's river, and a pump for domestic supply from the springs, the existing pumping equipment being moved from its present location to a new pump house to be constructed. This will explain the statement on Page 6 of the report "the cost of the pumping plant would be reduced by a like amount (\$1200) if the work is done now". The \$1200 being about \$700 for a new engine and \$500 for fire equipment and installation, both items being included in the estimate of fire pump cost.

I would call your attention to an error in the penultimate paragraph on Page 6 - \$3600 in the last line of paragraph should read \$4600.

I would ask you to kindly pass this information on to persons in receipt of a copy of this report.

Yours truly,

C.E. Webb  
District Chief EngineerT.S. Mills, Esq.,  
Engineering and Construction Service,  
OTTAWA(2 carbon-copies enclosed)  
(C.C. Mr. MacKay (2))

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REPORT  
on  
PROPOSED FIRE PROTECTION  
and  
REPAIRS TO DOMESTIC WATER SUPPLY  
ST. EUGENE INDIAN SCHOOL  
KOOTENAY AGENCY  
by  
W. C. WARREN

Cranbrook, B. C.  
June 29, 1941.

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Cranbrook, B.C.  
June 29, 1941.

Sir:

As requested in your letter of June 7th I today made an inspection of the domestic water system at St. Eugene Indian School with a view to providing additional water for fire protection. In this connection I wish to report as follows:-

PRESENT SYSTEM

The existing system comprises a Fairbanks-Morse 5" x 5" triplex displacement pump driven from a line shaft by belt connection to a 16-H.P. Lister oil engine, which alternately drives the generator of the electric lighting plant. The probable capacity of the pumping plant at present is 20 to 25 gallons per minute.

The pumping plant is located in a room adjoining the boiler room, about 14 feet below ground level. A pneumatic tank, 4-1/2 feet in diameter and said to be 30 feet long, buried 14 feet in the ground outside the pump house, provides for distribution throughout the school building. The estimated available water from the pneumatic tank based on the above measurements is 1600 to 2000 gallons. The 3-inch suction pipe of the pump extends about 1200 feet, to a tank of 5000 gallons capacity near St. Mary's river, where water collects by way of a 4-inch pipeline about 3000 feet long from springs which provide a varying flow of 25 to

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50 gallons per minute.

No outlets are available on the distribution line in the school for fire hose connections.

#### HISTORY OF DEVELOPMENT

There is little information to be obtained locally on the initiation and development of the present system prior to 1923. Sometime previous to 1923 St. Joseph's creek was abandoned as a source of supply, due to contamination by sewage from the town of Cranbrook about seven miles distant, in favour of the St. Mary's river. In 1923 a new intake well and inlet from St. Mary's river was constructed.

In 1932 St. Mary's river was abandoned as a source of supply due to contamination by sewage from Kimberley and the present source (springs) was developed. At that time also a new pumping engine (now out of service) was installed. The present hook-up of engine and pump was apparently made a year or more ago and is not an efficient arrangement.

Most of the equipment although 20 years old ~~xxx~~ or more appears to be serviceable. Pressure tests up to 130 lbs. within the past year indicate no weakness in the pneumatic tank, pump and connections, except the relief valve and water level indicator which do not function according to the school mechanic.

#### FIRE HAZARD

The value of the buildings on the school premises is probably not in excess of \$110,000 of which the school alone represents more than 90%.

The principal outbuilding, a frame barn, is almost certain to be a total loss in the event of a fire within it. There are a number of other

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small frame structures closer to the school building but of comparatively small value.

The school is a concrete-block building 30 years old. Danger of fire would be entirely within the building provided all unnecessary hazards were removed from the immediate vicinity.

It is very likely that the building would be a total loss if an inside fire could not be extinguished within one hour.

There are four male members of the staff ordinarily resident at or near the school who would be available in the event of a fire. An Indian rancherie at a distance of about one-quarter mile could provide some assistance and the Cranbrook fire department, I am informed by the school principal, will, and have on occasion, lent assistance.

WATER FOR FIRE PROTECTION

There are only two possible sources which will provide water in sufficient quantity for fire protection purposes without large capacity storage. These sources are St. Joseph's creek and St. Mary's river. Both streams are contaminated by sewage and a supply for fire protection purposes secured from either would require facilities independent of the works existing for domestic service.

A gravity supply from St. Joseph's creek through a pipeline about one mile in length, would provide sufficient water at 45-lbs. hydrant pressure for fire protection. Such an installation although meeting certain requirements better than any other, probably cannot be considered on account of the high cost, estimated to be \$16,275.00 with complete fire equipment.

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Although St. Joseph's creek passes close to the school it would not be a desirable source for a pumped supply. There would be difficulties of an assured supply during the irrigation season and probably during the winter months.

A supply obtained from the St. Mary's river by pumping would cost approximately \$8800. A suitable installation would provide water under 65 lbs. hydrant pressure at a rate of 500 gallons per minute. *JH*

PUMPING PLANT FOR FIRE PROTECTION

The high cost of a pumping plant is due to the particular conditions which must be met in obtaining water from the St. Mary's river for fire purposes. Such a plant must operate instantly under all adverse conditions, otherwise the investment is wasted.

In order to provide the greatest efficiency in operation a pumping plant should be located as near the source of supply as practical. Although it would be possible to install a fire pump in the present engine room of the school I do not believe it would be desirable and the cost would not be lessened.

Possibly the best and most convenient site for a pumping plant is near the site of the old intake, where the depth of water at low stage is about 2½ feet at a distance into the stream of 60 feet, from the well. This depth is barely sufficient for protection during winter when temperature is likely to drop as low as -40° F. Ice jams are likely to occur at any point along the river for a mile or more.

A pump house requires to be sufficiently below ground level to provide protection for the machinery in an operating condition when the temperature is low and at the same time be above highwater stage.

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The range between low and high stages is about  $7\frac{1}{2}$  feet. Such a site necessitates long intake and suction pipelines, as well as a screen chamber. The old intake well would probably be a source of trouble if used as a screen chamber as it is built on the gravel and has no bottom. I believe it would cost less to construct a new one rather than try to make the old one serviceable.

Records indicate that winter temperatures as low as  $-40^{\circ}\text{F}$ . may be expected and that low temperatures are likely to prevail for lengthy periods. Consequently pipelines should have a depth of cover of about 7 feet and hydrants 8 feet, as well as being suitably housed.

The present pumping plant is free from frost difficulties due to its proximity to the school heating plant. An auxiliary heating plant for a detached pump house becomes a necessity even if operated only a few times during the winter.

#### ALTERNATIVE SUGGESTION

It should be realized that the present water works equipment has been in service about 20 years and may require complete renewal within the next 5 or 10 years.

Under the most favourable conditions the supply from the existing plant is limited to about 50 g.p.m. and there are no means of making use of the plant capacity for fire service.

Regardless of whether a pumping plant for fire protection purposes only is to be installed now or in the future, I would recommend that the domestic plant be overhauled to make it function to its full capacity and that hydrants be installed within the school

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building, to make available, in the event of a fire, a supply of 50 gallons per minute. This is estimated to cost \$1200.00. The cost of the pumping plant would be reduced by a like amount if this work is done now. As an alternative to the fire pump installation I would suggest that when renewal of the pressure tank and suction pipe is indicated that a high level tank of 25,000 gallons capacity be substituted for the present pneumatic tank and the domestic pumping equipment be stepped up to 100 gallons per minute capacity, equipment to be housed as at present, and outside hydrants provided. Such an installation would assure a supply of 500 gallons per minute for a period of one hour and would meet the requirements of a situation the school staff are likely to be able to deal with successfully.

The cost of this suggested installation is estimated at \$8700 exclusive of the cost of inside hydrants, hose and new engine. Assuming that all of the old plant will require renewal shortly at an estimated cost of \$4100 the net investment for the degree of fire protection afforded would be about \$<sup>4600</sup>3600.

While preparing this report I have not had an opportunity of making new plans to accompany it. However, all of the essential information is contained in the plans accompanying my report of March 4, 1931. Should it be necessary, detailed plans can be prepared of any or all of the proposals advanced.

Yours truly,

APPROVED: .

*ag. Watkins*  
District Chief Engineer

*W. B. Warren*  
Asst. Hydraulic Engineer.

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COST OF PROVIDING FIRE PROTECTION SERVICE  
FROM ST. MARY'S RIVER, BY PUMPING PLANT

Intake Works and Suction Line

Material	\$ 528.50
Labour	622.00

Pump House

Material	763.00
Labour	577.80

Fire Pump and Fittings

Material, fire pump engine and fittings	1854.75
New Engine for Domestic Pump and changing to new pump house, using present pump	702.50
Labour installing	125.00

Pipeline, outside hydrants, hydrant houses,  
hose and nozzles

Material	1553.18
Labour	1147.00

Inside fire service, hydrant outlets, hose etc.

Material	293.20
Labour	145.00

Extension of Lighting Service to Pump house.

Material	180.00
Labour	<u>37.00</u>

Contingencies	<u>8528.93</u> <u>121.07</u>
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Engineering	<u>8650.00</u> <u>150.00</u>
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TOTAL	\$ 8800.00
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Material	\$ 5875.13
Labour, Contingencies and Engineering	\$ 2924.87

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ESTIMATE OF COST OF DEVELOPMENT  
OF FIRE PROTECTION SERVICE  
FROM PRESENT SOURCE OF SUPPLY

25,000 gal. high level storage tank and fittings	\$ 1675.00
6" pipeline intake to tank, in place,	4750.00
Fittings	250.00
Pump and Engine installed, 100 gal. per minute capacity	1150.00
Outside fire equipment, 2 standard hydrants, hydrant houses, hose nozzles etc.	725.00
Engineering	<u>150.00</u>
	<u>\$ 8700.00</u>

ESTIMATED COST OF REPLACING  
EXISTING DOMESTIC SYSTEM

Pneumatic tank	820.00
Installation	200.00
New suction line, in place	1640.00
Pump and engine, installed	1150.00
Fittings	<u>130.00</u>
	3940.00
Engineering	<u>160.00</u>
	<u>\$ 4100.00</u>

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ESTIMATE OF COST  
FIRE SERVICE FOR IMMEDIATE INSTALLATION

New Oil Engine	\$ 675.00
Relief Valve Replacement	32.00
Renewal of indicator pipes	20.00
2 pipelines from existing water service to inside hydrant stacks, including stacks 160'	67.20
6 - 2" hydrant valves	51.50
Pipe fittings	5.00
Fittings and hangers	15.00
4 - 60' lengths 2" linen hose	72.00
1 - 50' " 2" " "	15.00
1 -100' " 2" " "	30.00
6 Nozzles	13.50
6 Hose racks	<u>24.00</u>
	\$ 1020.20
Labour	<u>179.80</u>
	<u>\$ 1200.00</u>

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OFFICE OF THE DIRECTOR



CANADA  
DEPARTMENT OF MINES AND RESOURCES

SURVEYS AND ENGINEERING BRANCH

September 26, 1941.

Memorandum:

Dr. McGill.



Re: Fire Protection, Indian Residential School, Cranbrook, B.C.

With reference to your memorandum of May 29th, this matter was referred to our Engineering and Construction Service, and for your information, I enclose copies of a memorandum from the Chief Engineer, Mr. Mills, dated August 15th, of a letter from Mr. Webb, dated July 30th, and of a report by Mr. Warren, dated June 19th.

With regard to Mr. Warren's report, it should be noted that a slight revision is necessary. Instead of 2-inch hose, it is intended to provide 1½-inch standard linen hose for use inside the school, and 2½-inch cotton rubber-lined hose for use outside, the latter being the same size as is used by the city of Cranbrook.

Mr. Warren's report discusses three possible schemes. In order to make a fair comparison of the cost of these schemes, they have been analyzed from the point of view of the capital expenditure that would be necessary in each case within the next five or ten years. Briefly, the schemes are as follows,-

1. To build a pump house near the St. Mary's River, install in it a new fire pump and 60 H. P. engine together with another new 7 H.P. engine and the pump now installed in the school and supply water for fire protection from the river and for domestic use from springs, as at present, through separate mains.

This scheme would provide 500 gallons of water per minute for fire protection purposes for an indefinite period. Its cost would be -

For fire protection (immediate outlay)	\$8,800.
For renewal of existing installation (outlay in 5 or 10 years)	<u>\$3,400.</u>
Total	\$12,200.

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2. When the present suction pipe and pressure tank require replacing, to eliminate the pressure tank, increase the pumping capacity to 100 gallons per minute from the present source of supply, springs, and erect a 25,000 gallon high level storage tank, the pump to be installed in the building as at present. Its cost would be -

For fire protection and domestic water supply (outlay in 5 or 10 years)	\$8,700.
For additional inside fire protection equipment	<u>500.</u>
Total	\$9,200.

This scheme does not contemplate any fire protection until the pressure tank needs renewal at some future time. If installed, it would provide 500 gallons of water per minute for about one hour only.

3. To increase the present pumping capacity to 50 gallons per minute, and to install inside hydrant stacks, hose, etc. This would make use of the present source of supply, springs. Its cost would be -

For fire protection and domestic water supply (immediate outlay)	\$1,200.
For renewal of existing installation (outlay in 5 or 10 years)	<u>\$4,100.</u>
Total	\$5,300.

If installed, this scheme would provide 50 gallons per minute, for possibly several hours.

Scheme No. 1 is recommended if funds can be made available. Its advantages are, that it provides a comparatively large supply of water for fire protection purposes for an indefinite period, and that the engines and pumps are in a separate building, not subject to destruction by a fire in the school building.

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Scheme No. 2 is not recommended. It is comparatively expensive, would provide the same amount of water for fire protection as Scheme No. 1 - but for one hour only, and the engine and pump would be in the school building as at present, an additional fire hazard.

Scheme No. 3 is recommended only if funds for Scheme No. 1 cannot be made available in the near future. It has the advantage of immediate and total low cost, but will provide only 50 gallons per minute for possibly several hours. The engine and pumps would remain in the school building as at present, an additional fire hazard.

Would you please advise me of your wishes in this matter.

*J. M. Wardle*

Director.

Enclosure.

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Ottawa,  
October 7, 1941.

Memorandum:

DIRECTOR

Surveys & Engineering Branch

I am in receipt of your memorandum of September 26 with reference to providing adequate fire protection for the Kootenay Indian Residential School.

At the present time we have no funds available for any of the proposals suggested by Mr. Warren. As a consequence the matter will have to remain in abeyance.

*H. W. C. B.*

Director.

*Handwritten initials/signature*

*5-29/41*

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CRANBROOK B.C. JULY. 10. 41.

BOX 345

The Department of Indian Agency  
Cranbrook B.C.

Dear Sir, I beg to submit a price of sixty-five dollars for fo  
ling, door at present to be moved back, partition two ~~feet~~  
feet farther to be fitted with panic Bolt to be opened  
by yale lock from opposite side as described by Mr. Irwin  
The Indian Agent.

YOURS TRULY

/////// Lester Leasdy



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