MOOSE JAW, SASK., WATER WORKS

Proposed Extension to the Saskatchewan River—70 Miles of Pipe Line—Using 24" Continuous Wood Stave Pipe—Two

Million Gallon Reservoir-No Filtration Required

C ITY engineer, G. D. Mackie, Moose Jaw, Sask., at a recent meeting held in that city, proposed three different methods of increasing the present water supply. The existing system is fed from Moose Jaw Creek, and gives a maximum summer flow of about 1,000,000 gallons per day, and a maximum winter flow of from 700,000 to 800,000 gallons per day. The average consumption during the year 1918 was 883,000 gallons per day, with industrial consumption increasing steadily each year.

Mr. Mackie states that there would be sufficient water in Moose Jaw Creek to supply the needs of the city for The average run-off of the creek several years to come. per year, for eight years, was seven and one-half billion gallons. To utilize this water it would be necessary to construct a reservoir with a capacity of ten billion gallons, sufficient to supply the present population for three years. The land needed for the basin of this reservoir would approximate five thousand acres and the estimated cost including necessary supply pipe lines, would be about \$1,250,000. This proposed construction, however, does not allow for industrial growth, and as the city expanded, the water works would again have to be reconstructed. It would be possible to augment the present supply, by a maximum amount of 150,000 gallons per day, beyond which figure the city would be forced to obtain additional supply from other sources.

Major McPherson proposed that the city obtain a supply from Pelican Lake by an open ditch. The estimated cost of this project would be \$850,000. The disadvantage, as pointed out by Mr. Mackie, would be that the city would have such supply available for but seven or eight months of the year, and to obtain one million gallons per day at Moose Jaw, it would be necessary to pump ten or twelve million gallons per day, at the lake to counteract evaporation and percolation throughout the 60 miles of open ditch that would be required; also that the velocity in the ditch would be only one-half foot per second which, he claimed, was entirely too slow.

The third proposed construction as outlined and recommended by the city engineer gives an adequate supply for the immediate future, with ample allowance for industrial expansion. It also permits of successive enlargements as required, up to a maximum of 600 million gallons per day —the average volume of water in the Saskatchewan River in the dry periods. This project calls for an expenditure of \$1,630,000 and consists essentially of a 24 inch continuous wood stave pipe line approximately 60 miles in length, a two million gallon reservoir, a pressure pipe line against a head of 330 feet to the height of land and suitable pumping equipment. This installation would provide the city, daily, with 4,000,000 gallons of Saskatchewan River water, drawn through suitable infiltration galleries constructed in the river bed, and would require no additional filtration.

The pipe line would be of the continuous wood stave design, bound with individual bands ensuring minimum leakage in case of accident. The pipe would be covered throughout the entire length with an average depth of four feet, sufficient to protect it against frost, etc.

Mr. Mackie explained that he had recommended wooden pipe for financial reasons. He quoted figures showing the cost of piping laid in position, exclusive of excavation or backfill, to be as follows:—

24-in. wood stave	pipe per foot		\$ 2.	30
24-in. steel pipe pe	er foot		5.	74
24-in. cast-iron pip	pe per foot		10.	51
hich, for the total mount to:	distance, allow	ving 70	miles,	would

24-1p.	wood pipe	•	•			•							\$ 850,000
24-in.	steel pipe			•									2,123,000
24-in.	cast-iron .												3.890.000

Considering the total cost of the entire system for the three types of conduit, Mr. Mackie gave the following table of costs:---

Wood pipe	system	\$1,630,000
Steel pipe	system	2,900,000
Cast-iron 1	pipe system	5,000,000

Figuring the life of the wooden pipe line at but fifteen years, he said the saving on the carrying charges would be about \$60,000 per year, which would amount in fifteen years to \$900,000. This would be sufficient to replace the entire pipe line.

The detailed cost of the wood stave pipe line system was estimated as follows:---

Diesel engine and pump at river	\$ 148,000
Pressure pipe to height of land, 300 feet	65,000
2 million gallon reservoir at river	65,000
Pipe line (laid)	1,184,925
Damages	88,630
Engineering and contingencies	78,445

Total \$1,630,000

The total expenditure on the city water system is, at present, \$67.65 per capita. With this proposed construction the amount would be increased to \$149.15 per capita, which Mr. Mackie states to be greater than that of the Greater Winnipeg water area.

NEW ENGINEERING COMPANY

THE Henry Engineering Company announce the opening of offices at 71 Bay St., Toronto, as consulting en-The company has also opened a department which gineers. will specialise in the purchase and sale of power equipment. The company is composed of Mr. Thomas Henry, Mr. James A. Rumgay and Mr. Edwin B. McBryde. All of these gentlemen are well-known in the power field. Mr. Henry was for a number of years chief engineer of the Erindale Power Co., later with the sales department of the Toronto Electric Light Co., and for the past eighteen months has conducted a general consulting and sales agency business in Toronto, which business is to be taken over by the new Mr. Rumgay was for several years with the company. Canadian Allis Chalmers Co., and latterly with the Polson Iron Works, Toronto, while Mr. McBryde has had considerable experience with the Toronto Electric Light Co., and for the past two years manager of the Fisher Electric Company.

The rural municipality of Portage la Prairie has given its consent to the use of the highways for the construction of a power transmission line by the Government of Manitoba.

The following Canadians have been elected to member-Member,-H. E. Hunter, sales engineer, Canadian General Electric Co., Toronto. Associate members:-F. J. Allen, Benjamin Electric Co., Toronto; F. Bowness, Canadian General Electric Co., Peterboro, Ont.; Prof. E. F. Burton, University of Toronto; G. J. Doane, Canadian General Electric Co., Ottawa; N. I. Fisher and S. L. Hallatt, Toronto Hydro-Electric Co., Toronto; E. G. Hobs, Northern Electric Co., Toronto; C. B. Hookway and C. H. Hopper, Canadian Westinghouse Co., Toronto; A. D. Jardine, Moloney Electric Co., Windsor; H. H. Leeming, Hydro-Electric Power Commission, Toronto; J. C. Macfarlane, Canadian General Electric Co., Toronto; J. C. Martin, Hydro-Electric Power Commission, Toronto; G. N. Middleton, C.E., Good Engineering Co., Toronto; W. Packman, Canadian General Electric Co., Toronto; A. S. Phillips, Electrical Machinery Co., Toronto; G. O. Phillip, Ontario Power Co., Niagara Falls; V. K. Stalford, Hydro-Electric Power Commission, Toronto; A. C. Stansfield, Canadian General Electric Co., Peterboro; G. P. Thomas, Canadian Northern Railway, Toronto; A. E. Wilkes, C.E., Good Engineering Co., Toronto.