

Rat Rapids Development single line wiring diagram.

RAT RAPIDS DEVELOPMENT

Placed in Operation

Ontario Hydro Completes Plant on Albany River

THE Hydro-Electric Power Commission of Ontario has recently placed in operation its Rat Rapids Development, located at the outlet of Lake St. Joseph on the Albany River, and supplying power to the Pickle Crow and Central Patricia gold mines. This area, being located near the height of land, the heads available for power sites within reasonable transmission distance of the mining district are of relatively small magnitude. The head available at the Rat Rapids site is from 14 to 16 feet, which, with the installation provided, gives rated outputs of approximately 1,000 to 1,200 horsepower respectively at the low voltage bus.

Power Supplied to Pickle Crow and Central Patricia

The outflow from Lake St. Joseph is divided around a large island, the northerly outlet being known as the Rat Rapids channel and the southerly as the Cedars channel. Control dams were constructed across both outlets, and the powerhouse is located at the northerly channel.

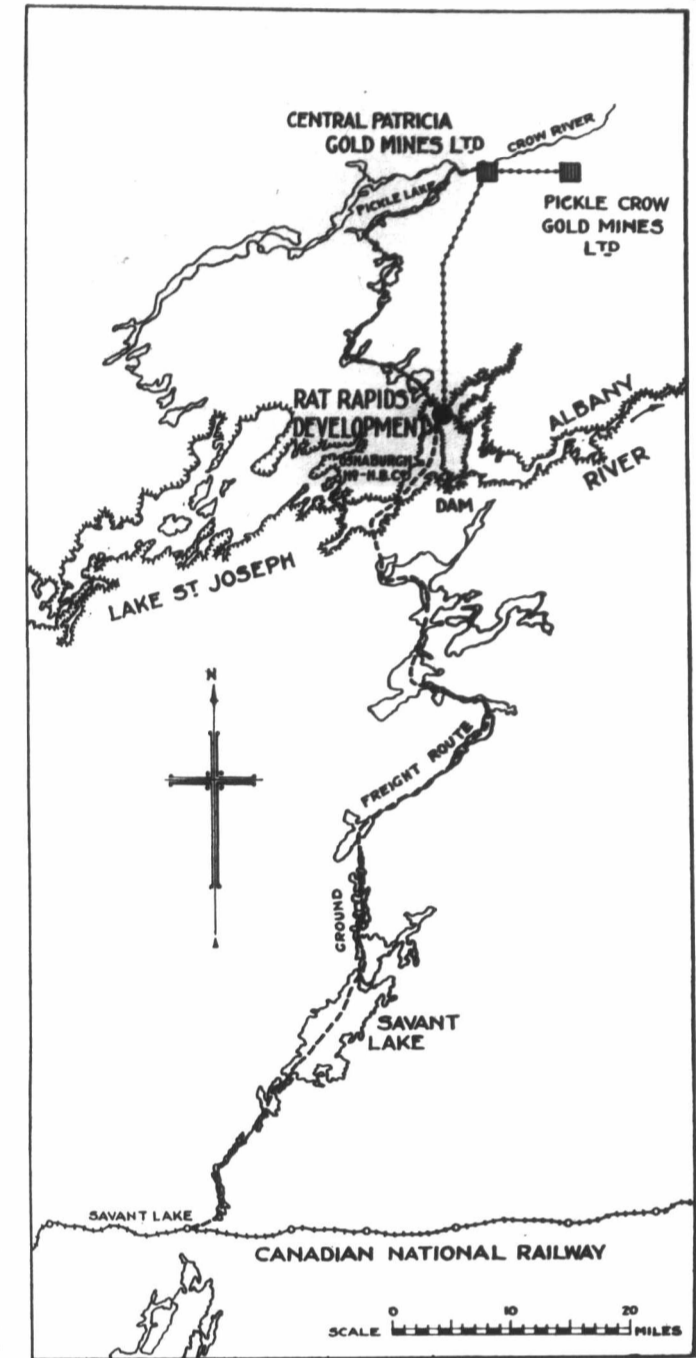
In view of the transportation difficulties, it was decided to construct the plant, as far as possible, from local materials. With this in mind, the dams are all built of rock-filled timber crib construction. The generating station superstructure is of log construction, chinked on the exterior face, between the logs, with oakum. The interior face is battened at intervals and lined with one-inch boarding over building paper. The roof is constructed of lumber sawn on the job, and covered with slate-surfaced rolled roofing. The turbine chamber roof is of similar construction, and where joined to the powerhouse roof an opening is provided to allow passage of warm air through the chamber as protection against freezing. The three operators' cottages are also of log construction, chinked between logs with oakum, and lined on the interior face with half-inch insulating board. A small building of similar construction was erected for the housing of radio equipment. The turbine chamber itself and the generating room substructure were constructed of concrete.

The obtaining of concrete aggregates was a rather difficult problem, it being necessary to transport the material across the eastern end of Lake St. Joseph a distance of from four to five miles in York boats towed by smaller boats propelled by outboard motors.

One factor which assisted materially in the progress of the work was the construction of marine railways, and a short section of standard gauge railway along the Root River connecting Lake St. Joseph with Lac Seul, permitting shipment by water from Hudson to the power site. Prior to this the only means of transportation was by aeroplane during both winter and summer seasons, and by overland route during the winter only.

Generating Unit

The generating unit is of the horizontal multiple-runner type, and was available from storage at one of the Commission's existing plants.

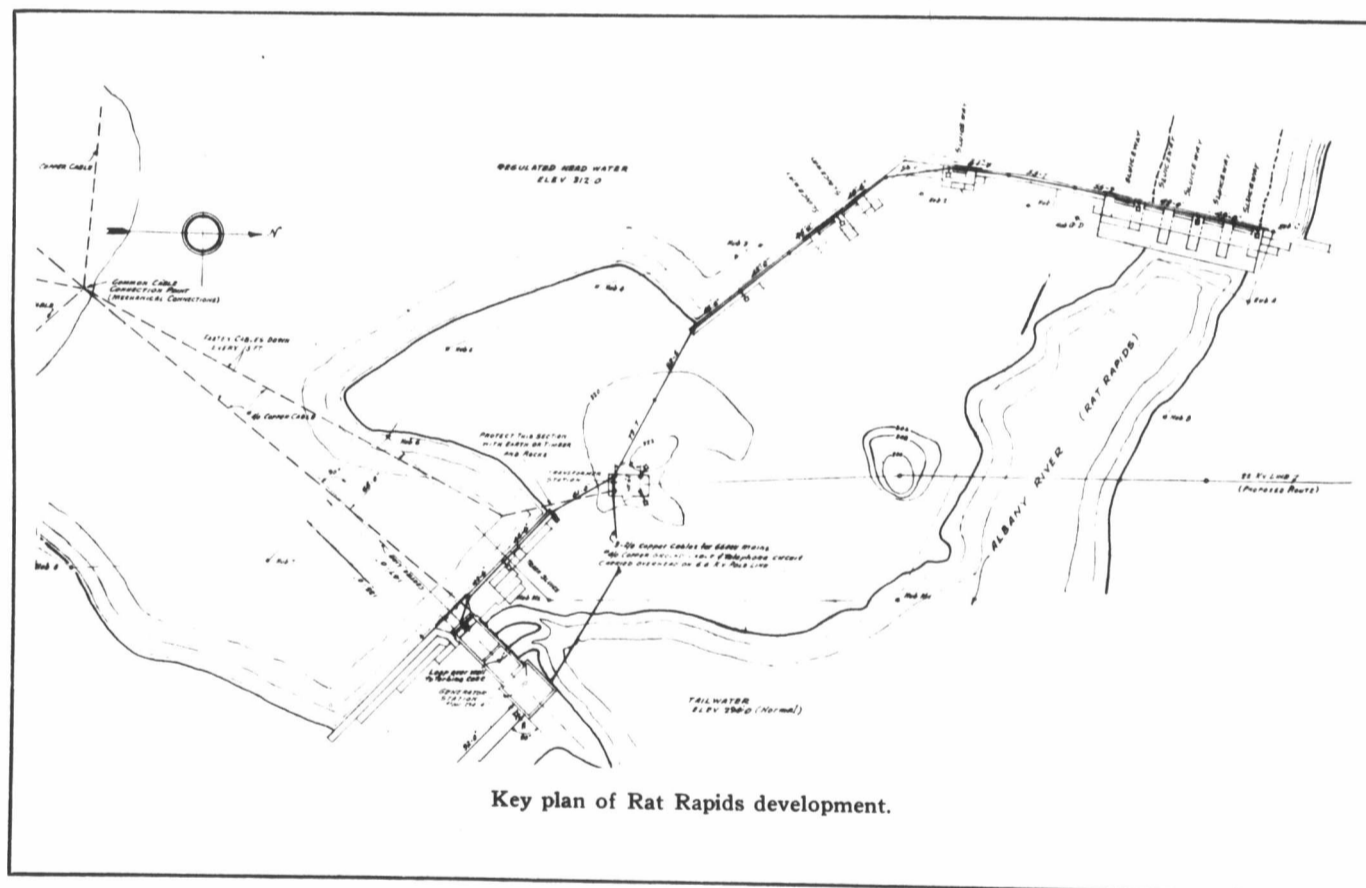


Map showing location of Rat Rapids development, the freight route, and the transmission line.

The turbine is a four-runner Francis unit designed for open flume setting. New runners were provided to adapt the turbine to the head conditions at this site. Speed control is obtained by an oil pressure governor.

The generator is rated 2,000 kva., 3-phase, 60-cycle, 6,600-volt, 164 r.p.m., 85 percent power-factor. The generator field current is obtained from a compound-wound exciter, belt-driven for the generator shaft. Hand regulation of the field current is obtained through manually-operated exciter and main field rheostats. A hand-operated 400-ampere, 600-volt carbon circuit-breaker, with 24-volt d.c. trip coil, is provided in the main field connections.

The 6,600-volt power supply from the generator to



Key plan of Rat Rapids development.