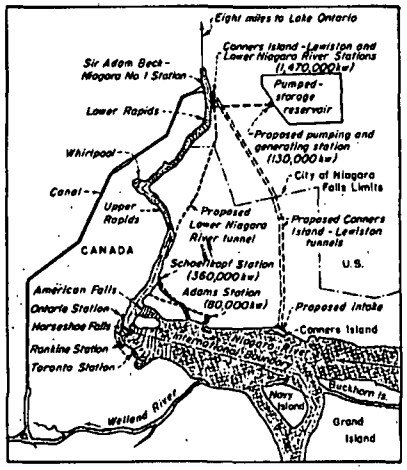
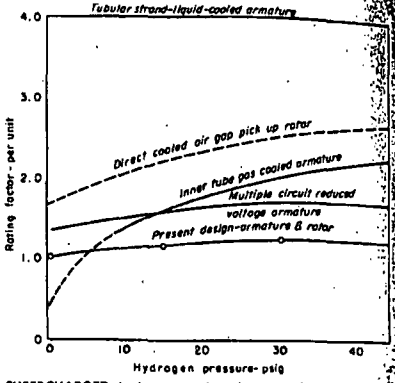
TECHNICAL BRIEFS

Latest engineering developments for busy power men

12 Digests for you on:
HYDRO POWER
ELECTRIC GENERATORS
POWER DRIVES





SUPERCHARGED hydrogen cooling has greatly reduced raw materials in construction, aided in better rating above

FIVE PUBLIC UTILITIES propose final power development for the U. S. side of Niagara Falls to look like sketch, left

Hydro Power

American Development of Power on the Niagara River. *By Harold I Howell, Niagara Mohawk Power Corp.*

After outlining the history of power developments at Niagara Falls and the treaty of 1950 to permit increased water diversion for power generation, the author describes the engineering plans for the development on the U. S. side of the Falls proposed by five public utility companies. Based on construction costs in the early part of 1953, the complete project is estimated to cost $390,000,000. To carry out this plan the following construction sequence is recommended to give the final development shown in drawing, left, above.

1. Construct one 47-ft diameter concrete-lined tunnel about 5 miles long from Conners Island intake to the Lewiston power house. This development will use about 30,000 cfs under a head of 314 ft and will operate in parallel with the existing Schoellkopf and Adams stations. Added power capacity will amount to 675,000 kw.

2. Construct the second 47-ft diameter tunnel, which will add about 675,000 kw more capacity. Schoellkopf station will continue to operate as will Adams when water is available within treaty limits.

3. Construct the pumped-storage development to provide greater peakload output at the Lewiston power house. This will include a single 47-ft diameter tunnel 1 mile long, a pumping generating station to add 130,000 kw of generating capacity and a pump-storage reservoir of about 22,000 acre-feet.

4. Construct the lower-river project tunnel about 3 miles long by 42 ft in dia. This development will add 120,000 kw and use 94-ft head in the lower river between the Schoellkopf and Lewiston power houses.

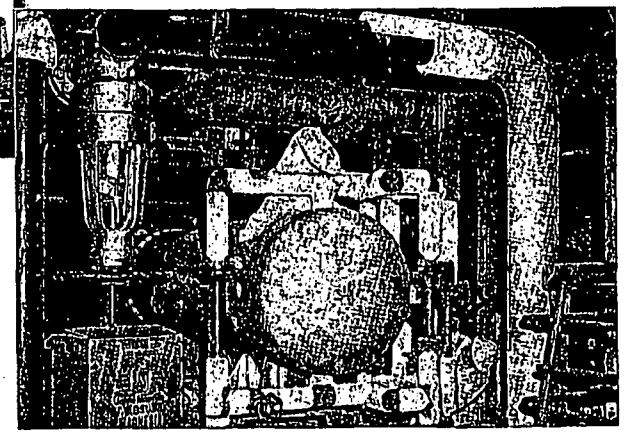
This plan will add about 1,600,000 kw of generating capacity to the two existing plants which have a total of 444,000 kw installed. The increase in annual energy generation will be about 8-billion kwhr, bringing the total on the U. S. side to about 12-billion kwhr. The proposed Niagara development can be completed in six years and power from the first step can be made available in three years after construction starts. *APC Paper, no number.*

Falcon Dam and Power Plants. *By J. B. White, Engineer, International Boundary and Water Commission, United States and Mexico.*

Falcon Dam on the Rio Grande, a stream marking the boundary between the United States and Mexico for over 1200 miles is of interest because it is being built as a joint job of the two governments, for benefit of the two countries. The primary purpose of the dam and large storage reservoir that it will create is to irrigate land in the southerly tip of Texas and the adjacent region in Mexico. Secondary features are flood protection and hydroelectric power development.

The dam is located 75 miles below Loredo, Texas, and 270 miles above the mouth of the river. It is a rolled-earth structure 5 miles long with 150 ft maximum height and will form a reservoir

At the new Moss Landing generating plant



Moss Landing, California ...east of the Pacific Gas and ...Company, designed by Stone ...Webster Engineering Corpora... under the supervision of the ...and E. Engineering Dept.

...skilled applicators of an ...ing J-M Insulation Contrac... Western Asbestos Company of ...Francisco, applying J-M 85% ...sia to pipelines during con... of the Moss Landing plant.

P.G. and E. INSULATES WITH SUPEREX-85% MAGNESIA TO LOWER POWER PRODUCTION COSTS

...Pacific Gas and Electric Com... invested $80,000,000 in its new ...000-horsepower electric generating ...t Moss Landing, California...the ...llion, like all other materials, had ...rigid specifications. *For this im... project, Johns-Manville Superex-Magnesia double-layer insulation ...ied on superheated steam pipes.*

...erex Combination Insulation con... of Superex®, a J-M insulation for ...peratures to 1900F, and J-M 85% ...esia. It was installed at the Moss ...ng plant for maximum thermal ...ency and long trouble-free service. ...double-layer construction, proved ...a quarter-century of outstanding ...-job performance, utilizes the ...heat resistance of Superex next ...hot surface—the greater insula... ...lue of J-M 85% Magnesia for the ...layer. It eliminates through joints, ...the jacket against scorching and is unharmed by expansion encountered in pipes carrying superheated steam.

J-M 85% Magnesia is the leading insulation for temperatures to 600F. It will not distort regardless of its length of service. It fits snug, stays tight. Heat savings, therefore, remain constant for the life of the equipment on which it is applied.

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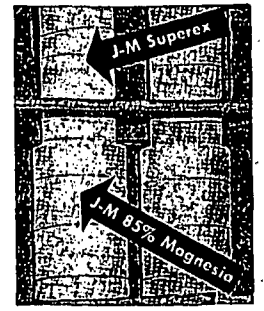

Double-Layer Superex-85% Magnesia Insulation was used on superheated piping at the P. G. and E. Moss Landing plant.

*Reg. U. S. Pat. Off.

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