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POWER AND WATER functions of the Colorado-Big Thompson and North Platte projects tie together at this control board



OPERATING PROBLEMS prove complicated because all power generation is at the western end of the transmission lines

Dispatching Center Serves Three States

A newly completed dispatching center tucked away in the mountains near Loveland, Colorado, is directing flow of water and power across the plains of Colorado, Wyoming and Nebraska—a 121,500 sq mi area bigger than New York, Pennsylvania and New Jersey combined.

The Bureau of Reclamation's new Flatiron Dispatching Headquarters guides the flow of electricity and water from 11 power plants with installed capacity of 288,300 kw and 16 reservoirs with storage capacity of 3,286,000 acre feet in Colorado and Wyoming. Its 17-man crew dispatches power over a 2500-mile network of high-voltage transmission lines to 130 wholesale customers

and feeds water into canals serving more than a million acres of farm land.

The Flatiron operation, known officially as headquarters for the Upper Platte System, ties together the water and power functions of the Colorado-Big Thompson and the North Platte reclamation projects. Power generated on the system totaled 732,000,000 kwh in 1952. Depending on water inflow conditions, this year's generation will be from three-quarters to one billion kwh.

The system is designed for integrated operation with the Public Service Co of Colorado, and two connections now exist between the utility and the bureau lines. A third connection will be made this fall when the Flatiron power plant

is finished and put in operation.

Operating problems are complicated because all of the power generation is at the western end of the transmission lines where water flows from the Rockies onto the plains. These large transmission distances coupled with light loads cause tremendous charging current to develop on the high-tension lines. Thus 115,000 volts placed on the lines at the generating end of the system often rises to 135,000 or 140,000 volts at the end of the transmission lines.

To correct this condition, which caused home electrical appliances to burn out if not controlled, four shunt reactors and a 40,000 kw condenser were installed at the eastern end of the lines.

Water Wheel at Hydro Station Disintegrates

One of two horizontal-shaft 450-rpm water wheels driving a 30,000-kw generator flew apart at Pacific Gas & Electric's Bucks Creek hydro station on the Feather River. Of the 19-bucket wheel, one five-bucket piece, weighing 2½ tons, hurtled through the station roof and landed on a hill 70 ft away. Another, with three buckets, hit the crane rail and fell into a storage area. A third, with ten buckets, dropped into the pit. The 19th bucket has not been found. Cause of the accident is unknown, but

one piece of the disk shows signs of a crack and internal rusting which went undetected since the wheel was installed in 1928. Best guess is that one bucket let go and the resulting unbalance vibrated the wheel to destruction. Investigation may sideline the unit for up to a year, the company estimates.

A second 30,000-kw unit was not affected and remains in operation. Bucks Creek has a static head of 2562 ft, highest in the country.

For coming events see page 242

Industrial Forum Predicts Commercial Atomic Power

At a recent press conference, six directors of Atomic Industrial Forum, Inc. agreed that commercial generation of electric power by breeder reactors is likely in the next ten years. They also held that the security of our atomic secrets is far more enhanced by continuous progress and development in the field than it is by restrictive secrecy.

The Forum is devoted to encourage and foster research development, knowledge, understanding of atomic energy. (Continued on page 240)

Reduce Solids Concentration

EFFECTIVE BLOWDOWN



COMPLETE TEST KITS for making standard feedwater and boiler water tests are supplied by Allis-Chalmers for field use. When needed, modern testing equipment and research facilities are available in A-C laboratories.

Need An Effective blowdown schedule to reduce concentration and limit heat losses in your system. Your schedule is easier after you've read Allis-Chalmers water conditioning Bulletin 53. It tells how to go between a manual and a continuous system. It explains factors involved in sludge removal. And it discusses effects of alkalinity and silica concentration.

Part of Practical Library

Bulletin 53 is one of a series of Allis-Chalmers bulletins on conditioning problems. These bulletins are the result of Allis-Chalmers experience in solving water problems for industry, as well as the company's long background in design and manufacture of steam turbine and power equipment.

Get Complete Service

Allis-Chalmers offers complete water conditioning service. You can get analyses and reports on your problems. You can get chemicals needed in all water treatments. And you can get equipment needed for any system.

For your copy of Information Bulletin 53 on blowdown, write Allis-Chalmers, Milwaukee 1, Wisconsin. Or better, call your nearby A-C district office to have an Allis-Chalmers representative consult with you on your water problems.

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