

Saudi Arabia's royal power plant operc

THE so-called open-air design of power generating plant, often used in favorable climates, came in for unexpected use in Saudi Arabia, according to a story brought back by representatives of Enterprise Engine & Machinery Co., and Michael Baker, Jr., Inc., consulting engineers. When Baker's construction of the Nasrieh power plant in Riyadh was unavoidably slowed for nearly a year, two Enterprise diesels, equipped with Elliott turbochargers and generators, went to work on schedule, right out in the open. Here are some details of a power plant that is somewhat different from those of Stateside standards.

The plant was built especially to provide power for Nasrieh Palace, occupied by Saud Ibn Abd Al-Aziz, then crown prince and now king of Saudi Arabia. Two units were involved, both Enterprise DSQ-318's rated 1560 bhp at 360 rpm, equipped with Elliott turbochargers, and driving Elliott 1375-kva alternating-

current generators equipped with 20-kw belt-driven exciters. They were scheduled to go into operation six months apart, December 1952 and June 1953.

Meeting the engine in-service dates proved to be the easiest part of the job. Unit No. 1, for example, stood completely in the open for three months during assembly and connection of auxiliary equipment. And it operated in much that same situation for a full five months afterward, with only a roof provided. Total enclosure wasn't possible for another four months, making a whole year that the unit operated as Saudi Arabia's first open-air generating plant.

The biggest hazard during this time was the characteristic windstorms, or "shamals", of Arabia. With these winds, the fine desert sands invaded every opening, corner, and pocket, requiring constant cleanup of all equipment.

To the credit of everyone con-

cerned, the American-made diesel generators and their auxiliary equipment came through with flying colors. When inspected after 5500 hr of operation at 90 to 110 percent load, first unit showed negligible cylinder liner wear, and about 0.002 in. off the top piston ring. Despite hot Arabian weather, there was trouble in maintaining engine-operating temperatures within required limits.

As finally completed, the Nasrieh plant building structure has three main sections—an engine room, three bays each 25 by 75 ft, (a diesel generator set will eventually be installed), switchgear bay measuring 9 x 35 ft, and a storage shop, 75 x 35 ft. The framing is reinforced concrete with a concrete roof. Walls are finished with native stone cut on the inside.

Representing the Saudi Arabian government, John Hungerbuhler, Swiss, is chief engineer of the power station. Michael Baker,

