

Oil Refinery

Emergency Process Steam Plant Allows Operations to Continue While Utility Overhauls System

Union Oil operates a refinery near San Francisco. A continuous supply of process steam is required to maintain refining operations. Steam is supplied by the local utility, PG&E. PG&E notified Union Oil that the steam plant would have to be shut down for mandatory repairs. Without steam, refinery operations would cease. This was unacceptable for economic reasons and because of the local community's dependence on the refinery for products.

Because of a problem with the condensate feed pump at the PG&E steam plant, the steam supply could be interrupted at any time and without warning. Union Oil did not have a back-up steam plant on the premises that could provide the 200,000 lb/hr of steam required to maintain refining operations. A temporary steam plant had to be brought on-line within 30 days without interfering with refinery operations. The temporary steam plant would also require water-conditioning equipment to support boiler operations.

No single temporary boiler was available to meet this substantial steam requirement. Nationwide Boiler engineers, working with Union Oil engineers, determined that six boilers - three skid-mounted units with capacities of 90,000 lb/hr, 60,000 lb/hr, and 40,000 lb/hr, along with three trailer-mounted units rated at 24,000 lb/hr each - would be sufficient to meet the demand. Because of the extremely short schedule, Union Oil engineers made provisions for foundation support for the skid-mounted boilers. They also were responsible for installing the necessary steam mains, fuel supply lines, make-up water lines, and the required electric power. Nationwide engineers and technicians concentrated on designing and building a new water treatment plant with softeners and chemical feed systems, as well as deaerators and boiler feedwater pump systems large enough to supply all six temporary boilers.



Within 30 days of the authorization to proceed and three weeks after the first equipment arrived on site, the steam plant was in operation. PG&E's steam supply was disconnected and the required repairs were implemented. The largest boiler was operated in automatic load-following mode, and the remaining units ran in manual mode at full fire. Refinery operations continued without interruption.



Customer Profile

- Union Oil
- Rodeo, CA
- First major oil refinery in the Bay Area

Supplied Equipment

- Two (2) new 200,000 lb/hr Babcock & Wilcox model FM superheat boilers
- Two (2) ground-mounted EconoStak economizers
- Two (2) low NOx Todd Variflame burners

EconoStak 
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