More TECHNICAL BRIEFS

Begins on page 154

have been used extensively for many years, considerable confusion still exists as to their characteristics. As essentially cheap by-product fuels, they have not received a great deal of attention in the past. In recent years their use in gas turbines and diesel engines has emphasized the need for a better understanding of their properties and behavior in combustion chambers. The present paper brings together published information on the nature of residual petroleum fuels, widely scattered in petroleum and engineering journals. These fuels usually exhibit a more complex behavior than heavy-distillate fuels.

Specifications for use in naval boilers are more restrictive and, in addition to the properties listed in the foregoing, may limit pour point, specific gravity and carbon residue and may require thermal stability and compatibility tests.

No specifications for gas-turbine residual fuel have been published as yet. Much research is in progress and a good deal more operating experience is required. These specifications probably will resemble those for naval fuel with additional restrictions on vanadium and sodium. *ASME Paper No. 53-F-1.*

Station Design

Russell Station Reheat Unit, Design and Operating Experience. *By I C McChesney, Rochester Gas and Electric Corp.*

The first unit installed at Russell Station in December 1948 was of non-reheat design. Electric load growth in the Rochester area required the completion of a second unit two years later. During this interval, the first unit design was restudied and compared with a reheat design. Plantwise the increase in cost of the reheat cycle was small. Some of the items of cost, such as the turbine and increased amount of alloy piping were offset by the factor of increased efficiency. This increase in efficiency over the nonreheat cycle amounted to about 5%, and for a given station design output, it decreased the heat input requirements, reduced the size of auxiliaries, and the amount of auxiliary power. The overall aspect of the reheat cycle was favorable and such a design was developed for the second unit. E M Gilbert Associates were the consulting engineers for the design.

In the late '40's, there was a revival of the reheat cycle at temperatures ranging from 950 to 1000° F. This unit

(Continued on page 240)

Directions for ordering papers on p 154