

Large scale conversions from residual oil to other fuels is not feasible. There is already heavy demand on the East Coast for grade No. 2 heating oil. By next winter this product will probably be in short supply even if no conversions from other fuel to this oil occur, and there simply will not be enough No. 2 oil available to meet the growing needs if substantial conversions from higher sulphur fuels should take place. Neither are sufficient quantities of gas or coal available and even if there were, extensive changes in residual oil burning equipment would have to be made before these other fuels could be burned in existing furnaces. These changes would be extremely costly and could not be made overnight.

In order that you may understand the problems facing the local Oil Industry in this regard and the reason for our recommendation for a graduated sulphur reduction program, I would like to elaborate on the operations of the residual fuel oil industry in relation to 1 per cent sulphur content residual fuel oil.

In the first place, what is residual fuel oil? Residual fuel oil is a heavy liquid substance, which remains after certain of lighter fuels, that is, gasoline, kerosene, distillate fuel oil, lubricating oils, solvents, etc., are extracted from crude petroleum.

It is known as heavy fuel or No. 6 fuel oil. No. 5 fuel oil, which is a blend of No. 6 and the lighter No. 2 oil is also used as "residual fuel oil," to a small degree that is. In the marine application, it is known as bunker fuel oil or Bunker C.

Secondly, what are the uses of residual fuel oil? Due to its unusual properties, heavy fuel oil is the Oil Industry's best heat-energy bargain, that is, the most heat units at the lowest cost. The significant properties of this heavy fuel are: gravity, viscosity, or resistance to flow at a certain temperature, sulphur content, carbon residue, water content, asphaltine content, sediment content, pour point—or congealing at certain temperatures—flash point, and ash content.

It is used extensively to fire power plant boilers in public utility and industrial installations; as a fuel in heating plants of apartment houses, office buildings, hotels, schools and hospitals; as fuel in large diesel engines, especially in the marine field; and as fuel for diesel railroad locomotives.

It is not to be confused with the lighter No. 2 heating oil, which is used in the ordinary residence, and which is considerably more expensive than No. 6 oil.

Then, how is residual fuel oil made? Crude oil consists of a mixture of hydrocarbons, ranging from light volatile gases to heavy asphalt-like residues. Proper refining is required to produce the many finished products which Industry demands. The first basic step in refining is the separation of the crude into selected parts or fractions by distillation at atmospheric pressure. Each part or fraction has different properties, particularly as to the boiling point. The thick heavy fractions, such as fuel oil, have high boiling points, whereas the thin, light fractions, such as gasoline and kerosene, have low boiling points. As these fractions boil, they change to vapors which, when cooled, condense and thereby the different parts of crude petroleum are separated.

Heavy residual fuel oil is made by three different methods.

There is a Straight-Run Residual which is the remainder of the crude oil that does not vaporize in the distillation process.