primarily controlled by chloride management in the incoming crude oil and secondarily controlled by the use of supplemental injection of organic neutralizers and corrosion inhibitors in the overhead system. Chloride management consists of good crude tank handling, desalting, and then polishing/neutralizing with aqueous sodium hydroxide, which is commonly called caustic. Refinery crude feeds contain water and inorganic salts (sodium, magnesium, and calcium chloride). Hydrolysis of calcium and magnesium chlorides (MgCl2 and CaCl2) occurs when crude oil is heated in the pre-heat exchangers and fired heaters. Many refiners inject caustic into the crude feed to the crude unit distillation tower to control condensation of hydrochloric acid downstream of the distillation tower in the overhead line. Caustic injection is vigilantly balanced with chloride levels measured in the overhead receiver. Typically, operators specify chloride levels to be between 10 and 30 ppm. The lower limit is set to avoid over-treatment with caustic. Over treatment with caustic can result in contamination of the heavy products from the crude distillation tower with sodium, which can affect downstream units such as cokers, visbreaker, and Fluid Catalytic Cracking (FCC) Units. One best practice limits sodium to 25 ppm in the visbreaker feed.

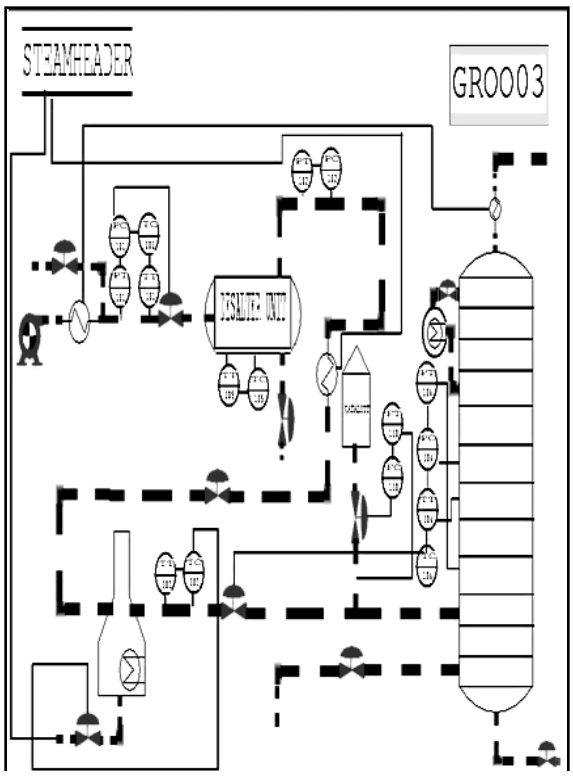

Fig. 6.1: Simulated layout of Refining and Corrosion Control

6 Simulated Output

The simulated output shows the complete process of the explained paper. The output gives an clear idea on the overall process. The vacuum over the sample is then replaced with an inert gas (such as nitrogen or argon) and the distillate receiver can then be stopper and removed from the system.All refineries utilize some form of desecrate water treatment so water effluents can securely bare turned to the environment or reused in the refinery. The design of waste water treatment plants is complicated by the diversity of refinery pollutants, including oil, phenols, sulfides, dissolved solids, and toxic compounds. Although the treatment processes employed by refineries vary greatly, they generally include neutralizers, oil/water separators, settling chambers, clarifiers, dissolved air flotation systems, coagulators, aerated lagoons, and activated sludge ponds. Refinery water effluents are collected from various processing units and are conveyed through sewers and ditches to the treatment plant.

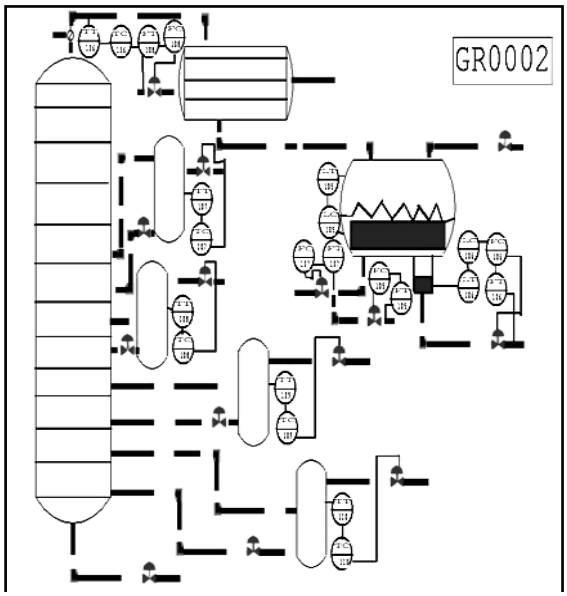

Fig. 6.2: Control Loops in the refining process