

ABSTRACT

Petroleum refining industry is classified among most polluting industries, where crude oil is fractionated into liquefied petroleum gas, naphtha, Kerosene/aviation fuel and diesel oil etc. Attock Refinery Limited (ARL), Morgah, Rawalpindi was selected for this study. The research work has been completed at natural cleaner production center for fuel established by United Nations Industrial Development Organization (UNIDO). A comprehensive research data interpretation based upon physical and chemical parameters (DO, TSS, TDS, pH, COD, BOD₅ and Oil & Grease) is given. Both composite and grab sampling of effluents carried out between January to October 2003. at variable frequency of monthly, bi monthly and consecutive days basis. COD, oil & Grease and sulfide values are exceeding NEQS limits frequently while BOD and TSS exceeds occasionally in C-Drain of Attock oil refinery.

Some parameters were also studied at three important distillation units HBE-20,000, HCU, HBE, -5000 and findings have been compared with C-Drain data of ARL and NEQS limits.

Treatment of waste water through coagulation flocculation by standard jar test procedure using FeCl_3 and $\text{Al}_2(\text{SO}_4)_3$ have applied successfully, microbiological status of refinery effluent from C-Drain of ARL revealed variation in Microbial counts with temperature and weather on monthly basis. Most suitable inoculum samples of oil degrading bacteria have been selected for further study after careful screening of culture media and Inoculum. For inoculum sampling indigenous oily water mud and soil of Attock refinery limited have been used. This study can pave the way for enhanced bioremediation of petroleum industry wastewater.